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SOCIAL STRUCTURE AND CULTURE: APPLYING CROSS-NATIONAL INDICATORS OF CRIMINAL VIOLENCE TO DOMESTIC TERRORISM

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By

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Despite the increase in terrorism research post September 11, 2001, little is known about domestic terrorism though it occurs at overwhelmingly higher rates as compared to transnational terrorism. Although the use of criminological theory and methods to study terrorism has increased recently, there are relatively few terrorism studies within the criminological literature. Drawing upon extant criminological theories of violence among countries, this study uses the recently created Global Terrorism Database to examine the distribution and correlates of domestic terrorism among 72 developed nations between 1970 and 1997. This study examined the following questions. First, do prior established predictors of criminal violence (i.e., economy, inequality, social welfare, political orientation, ethnic fractionalization, population, and pre-existing violence) also predict domestic terrorism at the country level? Second, is the relationship between these macro-structural and cultural variables in the same direction as found in the previously published literature? Using a series of contemporaneous cross-sectional analyses and lagged cross-sectional analysis, the results from this study indicate that there is considerable similarity between the correlates of cross-national homicide and correlates of domestic terrorism. There was considerable evidence for the relationship between population size and overall levels of domestic terrorism. This relationship was robust across short time intervals (1970s), the full time span (1970-1997), as well as in the long and short term lagged analyses (1970-1990 predictors of domestic terrorism in 1991-1997

and 1991-1994 predictors on 1995-1997 domestic terrorism). On the contrary I did not find evidence that large youth populations are significantly related to higher levels of domestic terrorism. Income inequality (GINI) also emerged as a significant correlate of domestic terrorism in the long and short term contemporaneous analyses. Those countries that had higher overall levels of income inequality for the entire time span also had higher levels of domestic terrorism, compared to those countries with low levels of income inequality. Contrary to theoretical expectations yet supportive of prior criminological research, this study found that stronger democracies actually have more domestic terrorism. In particular, those countries with more restrictions placed on executive decision-making power, tend to have more domestic terrorism events, compared to those countries with less restrictive executive decision-making processes. This study concludes with a discussion of the results within the larger criminological literature as well as future avenues of research.

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CHAPTER I

INTRODUCTION

Terrorism has become a popular subject for all media outlets following the American attacks of September 11th. The 9/11 Commission Report (2004) provides graphic statistics of that day's death toll: 256 people died on the four planes, 156 died at the Pentagon, and over 2600 perished at New York's World Trade Center. This was not the first terrorist attack on American soil, but it has become the motivation for many to gain a better understanding of the complexities of terrorism. In a reaction to the 2001 terrorist attacks, Congress created the Department of Homeland Security (DHS), now the third largest cabinet agency (National Academy of Public Administration, 2009), and tasked them with the protection of the United States from future terrorism (DHS, 2009a). In 2010 alone, the DHS (2009b) has a fiscal budget over 55 billion dollars. The number of terrorism studies has expanded in light of our governmental concern over national safety and the enormity of federal budgeting in this field. LaFree and Dugan (2007) are timely in creating and making available the Global Terrorism Database. Using the Global Terrorism Database (GTD) and other country level data sets, this thesis examines structural and cultural covariates of approximately 19,886 domestic terrorism incidents among 72 developed countries between 1970 and 1997. Specifically, I examined the associations between domestic terrorism and economic development, economic inequality, social welfare expenditures, political orientation, ethnic fractionalization, population, and pre-existing violence.

Problem/Debate

Terrorism has been defined as "the threatened or actual use of illegal force and violence to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (LaFree & Dugan, 2007, p.184). A number of other possible definitions of terrorism have been used by researchers publishing on this topic (Hoffman, 2006; Schmid & Jongman, 2005). The reasoning behind the use of this specific definition will be explained in the following chapter. The terrorism phenomenon is broad, complex, and has been examined by academics from various fields that include political science, psychology, economics, sociology, and criminology. Despite the widespread interest, the extent of research on terrorism within criminology has been mostly atheoretical and non-empirical (Damphousse & Smith, 2004), and relatively little is known about domestic terrorism as compared to transnational (Sanchez-Cuenca & de la Calle, 2009). Clearly, terrorism can be classified as transnational, international or domestic. LaFree and Dugan (2009, p.440) present the differences:

> In general, transnational terrorist attacks are those involving a national or a group of nationals from one country crossing international borders and attacking targets in another country. Domestic attacks are those involving a national or a group of nationals attacking targets in their home country.[1]

International terrorism is often used interchangeably with transnational terrorism even though it differs in definition. The U.S. State Department (2009, p.331) defines international terrorism as "terrorism involving citizens or the territory of more than one

[1] The Global Terrorism Database Codebook 3.0 emphasizes the nationality of the target that was attacked and the nationality of the attackers. They fail to mention any case of a U.S. entity attacked on foreign soil, if that signifies a transnational or domestic incident. Likewise, LaFree and Dugan (2009) give an example of Nigerian nationals attacking the Nigerian embassy in the United States as a transnational incident by most open-source databases.

country." Whereas, multiple researchers (Burgoon, 2006; Enders & Sandler 1993) use a transnational terrorism definition, they still apply it to some version of Mickolus, Sandler, Murdock, and Flemming's (2004) data set titled *International Terrorism: Attributes of Terrorist Events (ITERATE).*

Before Americans lived through the era of *The Global War on Terrorism*, one prominent act of domestic terrorism struck the hearts of many. On April 19th, 1995, Timothy McVeigh bombed the Oklahoma City Federal Building killing 168 people and injuring more than six hundred (Oklahoma City National Memorial, 2009). Domestic terrorism, a subcategory of terrorism that is devoid of foreign involvement (LaFree & Dugan, 2007), can obviously be as devastating as the international version, yet the amount of published domestic terrorism research is relatively miniscule (Freilich, 2003; Freilich & Pridemore, 2005; Krueger & Maleckova, 2002; Strentz, 1988). Not to mention, researchers agree that the overwhelming number of terrorist incidents are domestic (Abadie, 2006; Dugan & Young, 2008; Findley & Young, 2010; LaFree, Yang, & Crenshaw, 2009). In LaFree, Yang, and Crenshaw's (2009) analysis of 16,346 terrorist attacks on non-U.S. targets, a staggering 15,225 attacks and 35,322 of the 38,113 fatalities were deemed domestic. This equated to 90% of the total attacks and 84% of the total fatalities. This heightens the need for domestic terrorism research.

Though it is agreed that terrorism is a horrific criminal offense, criminological theory has been relatively nonexistent in terrorism research (Rosenfeld, 2004), whereas economic, sociological, and political-based theories have filled this gap. LaFree and Dugan (2004) promote the use of criminological theory coupled with criminological data collection and methods to the study of terrorism. After examining available

criminological theories relevant to the study of terrorism, one theory in particular has never been formally linked to terrorism although the core thesis could potentially apply to the motivation to commit such acts as well.

In *Crime and the American Dream*, Messner and Rosenfeld (2006b) claim that the United States' patterns and higher rate of serious crime is the product of American cultural and structural organizations (i.e., the American Dream). They conceptualize the *American Dream* as a "cultural commitment to the goal of economic success, to be pursued by everyone under conditions of open, individual competition" (Messner & Rosenfeld, 1994, p.6). Drawing from Robert K. Merton's prior anomie work, Messner and Rosenfeld (1994) developed a macro-sociological theory of crime branded as institutional anomie theory (hereafter, IAT).[2] Messner and Rosenfeld (2001) posit that a cultural emphasis on financial success exists to the point that the American economy dominates our major societal institutions, such as school, family, and politics.

Messner and Rosenfeld (2001, p.199) claim that our society is incapable of strongly regulating its members through social norms because an economic "institutional balance of power" contributes to weakened control and increased pressure to criminally offend. Anomie becomes apparent in the eroding of social norms (Rosenfeld & Messner, 2006). When these social norms lose their ability to govern the behavior of its societal members, there becomes "an increasing likelihood that people will pursue their goals 'by any means necessary,' including criminal means" (Messner & Rosenfeld, 2006a, p.129-130). The pursuit of a goal at all costs, including illegal means, carries very similar undertones to many terrorism definitions found in Hoffman's (2006) review of terrorism.

[2] They also draw from Emile Durkheim and Karl Marx to formulate their theory of IAT.

In short, terrorism is a subset of lethal violence where IAT has been used as an explanation at the cross-national level. Messner and Rosenfeld's IAT is relatively young and abstract in nature, as a result it is difficult to operationalize some of their key concepts and establish a research method that is amenable to complete tests of their theory (Cullen, Parboteeah, & Hoegl, 2004; Jensen, 2002).

It can be argued that IAT is an American-centric theory that holds little relevance to other nations with assumedly less economically driven people. Cao (2004) and Jensen (2002) both use World Values Survey data to debate the American exceptionalism component by finding other nations actually have similar cultural orientations to the United States. Messner and Rosenfeld (2001) present that IAT is meant to explain macro-level variations among serious criminal offending. This cross-national study on terrorism fits both of these requirements. Also, Messner and Rosenfeld (1997) used nations as the unit of analysis in their own empirical test of the theory.

Thesis

Using data taken from several data sets, this study examined if prior macro-structural and cultural predictors of cross-national variations in homicide and terrorism (i.e., economy, inequality, social welfare, political orientation, ethnic fractionalization, population, and pre-existing violence) also predict domestic terrorism at the country level. This thesis draws upon extant literature as well as a similar study conducted recently by Mullins and Young (2009), as a springboard for the current study. The findings of such research could support LaFree and Dugan's (2004) position that criminological theory should be more prevalent among terrorism research, while laying the groundwork for future criminological theory to be linked to terrorism.

Outline

The ensuing thesis is outlined as follows. Chapter I provides the introduction and outline. Chapter II defines and conceptualizes terrorism, and provides a foundation for measuring the phenomena, this includes the many definitional complexities of terrorism and available data sets. Chapter III explains terrorism through a review of prior research and empirical findings. Theoretical postulations are derived from Messner and Rosenfeld's (1994) institutional anomie theory, along with social structural strain and cultural theories common in literature on lethal violence at the country level. Chapter IV outlines the research design. The purpose and hypotheses are revisited. Sample, variables, data sources, and the analytical strategy are all subheadings within this section. In Chapter V, the findings are presented. Lastly, Chapter VI completes this paper through a conclusion of the significance of the findings, methodological limitations, and a proposed future research direction.

CHAPTER II

DEFINING AND MEASURING TERRORISM

Terrorism: Conceptual and measurement discussion

Bruce Hoffman (2006) uses the first chapter of his book *Inside Terrorism* to tackle the conceptually broad term. He posits that most people have a vague understanding of what is meant by terrorism but lack a more concrete and precise definition. This is in part blamed on modern media and their need to convey the complex phenomena of terrorism within a short allotted airtime (Hoffman, 2006). Hoffman (2006) provides examples of the broad assortment of violent acts that get labeled as terrorism: the bombing of buildings, political assassinations, civilian massacres by the hands of the military, poisoning grocery store produce, or contaminating medication at a pharmacy. Considering this, terrorism is an umbrella term that includes acts that are deemed criminal as well. Among Hoffman's examples, there is mass murder, murder, war crimes, attempted murder, and tampering with pharmaceuticals. Yet many violent acts such as these may be incidents of terrorism. For a concept that encompasses a multitude of violence, it is not surprising to find different definitions.

Our government alone has varying definitions among departments, and Hoffman (2006, p.31) quotes the differences. The Federal Bureau of Investigation defines terrorism as:

> the unlawful use of force or violence against persons or property to intimidate or coerce a Government, the civilian population, or any segment thereof, in furtherance of political or social objectives.[3]

[3] Hoffman (2006, p.31) continues with the U.S. Department of Defense defining terrorism as "the calculated use of unlawful violence or threat of violence to inculcate fear; intended to coerce or intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological

The National Counterterrorism Center (NCTC) provides the U.S. Department of State with annually required terrorism statistics. In 2005, NCTC (2009, p.1) updated and broadened their definition of terrorism to "premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents." This definition, along with the previous, is relatively similar to what has been used in prior terrorism research. Enders and Sandler (1999, p.147-148) use a definition that is common among terrorism researchers, "the premeditated use, or threat of use, of extra-normal violence or brutality to obtain a political objective through intimidation or fear directed at a large audience" (Koch & Cranmer, 2007; Li, 2005; Li & Schaub, 2004; Rosendorff & Sandler, 2005). Many of these definitions are lengthy and include too much verbiage. The NCTC definition includes clandestine agents which add nothing to the definition and Enders and Sandler's (1999) definition uses extra-normal violence which is vague and misleading. However, all of these definitions require some form of political motivation to be present for the act to be classified as terrorism. Gurr (1970, p.3) defines political violence in much the same way: "all collective attacks within a political community against the political regime, its actors – including competing political groups as well as incumbents – or its policies." Terrorism is in essence a form of political violence, but not all forms of political violence can be classified as terrorism.

The different definitions of terrorism are so vast that Schmid and Jongman (2005) found over a hundred different terrorism research definitions in their review of available literature. In *Political Terrorism: A Research Guide*, Schmid and Jongman (2005)

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objectives." And the Department of Homeland Security defines it as "any activity that involves an act that is dangerous to human life or potentially destructive of critical infrastructure or key resources; and … must appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping."

examined 109 terrorism definitions and tabulated their findings to show the frequencies of definitional elements. Violence/force was present in 83.5% of the definitions, political in 65%, fear or terror emphasized in 51%, and threat was found in 47%.[4] The definition of terrorism used by the creators of the Global Terrorism Database 1.1 (GTD) is similar to the multiple definitions previously quoted: "the threatened or actual use of illegal force and violence to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (LaFree & Dugan, 2007, p.184).[5] This definition incorporates the top four elements Schmid and Jongman (2005) addressed in their review. This broad definition promotes more inclusion of incidents into the database (LaFree & Dugan, 2007), yet it has the distinct combination of force/fear and a specific motive that is unique to terrorism. It can be argued that GTD's definition is overly inclusive or too broad which can be a specific limitation for the use of GTD data. Whereas, LaFree and colleagues (2009) have noted the potential for measurement error in terrorism estimates produced by the GTD, particularly, the potential for confounding related violence with terrorism. The GTD is designed to exclude incidents that are state sanctioned or wartime related, however the researchers have acknowledged that during these periods of conflict it is often difficult conceptually and empirically to distinguish between terrorism, criminal acts or acts related to war/conflict (LaFree et al., 2009). Compared to the array of aforementioned definitions, the GTD's terrorism definition is as appropriate as any. It is

[4] These are the top four definitional elements only. Reference Schmid and Jongman (2005) for the complete list of 22 elements reported.

[5] Credit for this definition is given to the Pinkerton Global Intelligence Service, whose research is incorporated into the GTD. PGIS transferred the original hard copy data to the University of Maryland to be stored and computerized (LaFree & Dugan, 2007).

clear, concise, and applicable to measurement. Where there is diversity in ways to define terrorism, there is also diversity in available data sets.

Existing terrorism databases

Terrorism researchers are often reliant on available data sets, and the act of terrorism itself poses some collection issues. Schmid and Jongman (2005), collaborating with R. Thysse, present a paradox for terrorism data. They claim that the nature of terrorist activities is semi-clandestine to begin with, and this creates a scarcity for data. On the contrary, Jenkins (1975, p.16) has argued that "terrorism is theatre" and often terrorist attacks are disguised to garner worldwide attention. Similarly, Schmid and Jongman (2005, p.137) state that an abundance of "terrorist atrocities" data exists because of its appeal to Western press.

LaFree and Dugan (2004) also address the untraditional data collection qualities of terrorism compared to other forms of crime. Most crime data is collected through "official" sources (i.e., police reports or sentencing statistics) and victimization or self-report surveys. It is difficult to obtain terrorism data using the methods for these sources. For one, victimization and self-report information would be extremely difficult due to the rarity of terrorism in general. Second, LaFree and Dugan (2004) find two major faults to official terrorism data collection: data collected by governments have political biases and most suspected terrorists do not get criminally charged with terrorism. As a result, open-source data sets may be useful for examining terrorism.

Table 1 replicates LaFree and Dugan's (2004) review of prominent terrorist incident databases. They compared the scope, periods, and total number of incidents for eight widely used databases. The scope is the inclusion of domestic or international incidents or both. Recall that, domestic terrorism is an incident that lacks any known

foreign involvement (LaFree & Dugan, 2007). Transnational terrorism involves an incident in one nation with perpetrators, victims, or targets from another country (Li & Schaub, 2004), similar to the international terrorism definition found in the ITERATE data set as "the action's ramifications may transcend national boundaries through the nationality or foreign ties of its perpetrators, its location, the nature of its institutional or human victims, or the mechanics of the resolution" (Mickolus & Heyman, 1981, p.154).

LaFree, Yang, and Crenshaw (2009) used the Global Terrorism Database to analyze attack patterns of U.S. and non-U.S. targets by 53 terrorist groups that the U.S. government considers an American threat. Out of the 16,346 non-U.S. attacks, 15,225 or 90% were domestic. This also included 84% of the fatalities. Abadie (2006) also highlights the fact that domestic terrorism is understudied though more common in occurrence than international terrorism. The MIPT Terrorism Knowledge Base reported a total of 240 international terrorist incidents to go along with the staggering 1,536 acts of domestic terrorism that occurred in 2003.[6] Furthermore, LaFree and Dugan (2009) reviewed sources comparing transnational and domestic attacks to conclude that the ratio can be as high as seven to one. If the majority of terrorist incidents are domestic, it makes sense to use a data set that incorporates domestic terrorism to gain a more complete picture of the phenomena.

[6]Abadie (2006) references these numbers from the MIPT Terrorism Knowledge Base, formerly www.tkb.org that no longer exists.

Table 1

Major Archival Databases on Terrorist Incident Reports

Author	Scope	Period	Incidents
PGIS (GTD)	Domestic & International	1970-1997	67,179
ITERATE	International	1968-2000	10,837
TWEED (Europe)	Domestic	1950-1999	10,498
U.S. Dept. of State	International	1977-2001	10,026
RAND	International	1968-1997	8,509
TRITON	Domestic & International	Mid 2000-Mid 2002	2,452
RAND-MIPT	Domestic & International	1998-2005	17,423
COBRA	International	1998-1999	1,041

Source: LaFree & Dugan (2004).

Among LaFree and Dugan's (2004) assessment, other benefits associated with the use of certain data sets become evident. Private risk assessment companies have produced four of the databases (Cobra, Triton, Tweed, and Pinkerton Global Intelligence Services). Rather than government entities, such as data from the U.S. Department of State's *Patterns of Global Terrorism*,[7] data from private organizations may have less political bias than data collected from government entities (LaFree & Dugan, 2007). Of the top five data sets in terms of incidents recorded and years covered, only PGIS (now the GTD) includes domestic and international terrorism. The GTD also has more incidents than the rest of the databases combined. LaFree and Dugan (2004) attribute this to their broad definition which includes threatened use of force and their inclusion of both domestic and international incidents. The ITERATE (International Terrorism: Attributes of Terrorist Events) data is prominent among prior research (Enders & Sandler, 1993),

[7] This report is now titled *Country Reports on Terrorism* and is annually compiled by the National Counterterrorism Center (NCTC).

but does not include domestic terrorism. Jan Engene (2007) presents a case for the benefits of the TWEED data set because of its focus on domestic terrorism that is committed within the same political system. The drawback to this data set is that it is restricted to 18 Western European countries.

Schmid and Jongman (2005) also conducted an extensive review of databases available for terrorism research. Among the more than 15 data sets presented, none have the amount of global coverage or number of incidents found in the Global Terrorism Database. Many cover an equal or longer span of years, but nearly all fail to include the last two decades. The benefits of the PGIS database carry over to the Global Terrorism Database since it was used as the platform for its creation. LaFree and Dugan's (2007) *Introducing the Global Terrorism Database* outline the creation of the GTD. Initially, the PGIS data was transferred to the University of Maryland for secure storage. The hardcopy information was later computerized and crosschecked with RAND and ITERATE incidents excluding state-sponsored terrorism. The coverage still only spanned 1970-1997. In 2006, GTD managers received government funding to expand the data set beyond 1997. Now, the GTD uses a criteria committee of terrorist experts to review potential terrorist incidents for inclusion in the GTD. Recent studies have shown the expansion of the GTD well beyond the initial terrorist incidents (LaFree, Morris, & Dugan, 2009). The new cases capture over 120 incident variables that include the date, incident type, location, target, weapon, fatalities, injuries, and etc. The current GTD totals more than 80,000 transnational and domestic attacks from 1970 through 2007 (www.start.umd.edu/gtd). The fact that it has a global coverage, includes both domestic and transnational terrorism by employing a broad terrorism definition, and the sheer

volume of incidents make the GTD an ideal data set for this empirical study of terrorism. It should be noted that open source data sets are not without biases (i.e., media bias) and may under estimate terrorism from certain countries. Efforts to combat some of these issues are further discussed in the methods section.

CHAPTER III

EXPLAINING TERRORISM

Terrorism: Proposed causes and empirical review

Martha Crenshaw (1998) claims that terrorism has no single explanation, as such this study examined the association between several structural variables and domestic terrorism. Prior literature has indicated that economic development, economic inequality, social welfare spending, democratic political systems, ethnic fractionalization, population, and pre-existing violence are associated with terrorism at the country level (Abadie, 2006; Blomberg, Hess, & Weerapana, 2004; Burgoon, 2006; Findley & Young, 2009; Koch & Cranmer, 2007; Li, 2005; Li & Schaub, 2004, Mullins & Young, 2009; Noricks, 2009; Wade & Reiter, 2007). These structural and cultural predictors of terrorism are also predictive of homicide at the cross-national level (Batton & Jensen, 2002; Gartner, 1990; Krahn, Hartnagel, & Gartrell, 1986; LaFree & Kick, 1986; McDonald, 1976; Messner, Raffalovich, & Shrock, 2002; Messner and Rosenfeld, 1997; Neapolitan, 1994; 96; Pampel & Gartner, 1995; Savolainen, 2000; see LaFree 1999 for a review).

A number of political scientists address the issue of grievances and political opportunity as root causes for terrorism (Crenshaw, 1981; Noricks, 2009; Ross, 1993).[8] Similarly, criminologists view grievances as analogous to economic stress/strain (LaFree

[8] Noricks (2009:11) conducted a "root causes of terrorism" review that is the most comprehensive to date. A table was created with 24 terrorism factors that were present in prior literature. Fifteen of those were seen as relevant situational factors: facilitative norms about use of violence, cultural propensity for violence, ideology/religion, political inequality, lacking political opportunity, reduced government capacity, relationships/social ties, humiliation, social instability, youth population growth, mobilizing structures, grievances, constrained civil liberties, perceived illegitimacy of regime, and repression.

& Dugan, 2009), which may pressure or compel "certain persons in the society to engage in nonconformist rather than conformist conduct", such as domestic terrorism (Merton, 1995, p.6-7). For example, social structures limit the ability of certain members of society from attaining goals, primarily economic goals (Merton, 1957). The following sections provide a brief theoretical and empirical review of the literature.

Economic development

Messner and Rosenfeld (1999, p.28) describe social institutions as "relatively stable configurations of statuses, roles, values, and norms that emerge from the basic functional requirements of a society." All institutions perform two key functions: they regulate the behavior of their respective society through normative patterns and facilitate access to resources and rewards, either desired or necessary (Messner & Rosenfeld, 1999). Strain becomes apparent when structural conditions "deprive people of the resources and rewards that they need, expect, or desire", thus resulting in crime and violence (Messner & Rosenfeld, 1999, p.28). The economy is one such social institution charged with orchestrating the production and distribution of goods and services. Weaker economies will limit the availability of desired resources essentially pushing some individuals toward violence. Strong economic institutions, measured as higher gross domestic product per capita (GDP), may be related to reduced rates of lethal violence in two theoretical ways. First, the social control perspective would insinuate that nations with strong economic institutions are better able to channel its populace into conventional law-abiding behavior, reinforcing norms and behavior patterns counter to violence. Secondly, strain theories suggest that economic institutions may temper the social strain individuals feel as a result of economic strain, thereby reducing the motivation for violent

behavior (Messner & Rosenfeld, 1997; 1999). Thus, two perspectives predict a negative relationship between measures of economic development and criminal violence.

However, in contrast, modernization theories predict a positive association between economic development and violence. Modernization theories infer that rapid economic development may erode social control and increase social strain, and economic stress argues that crime is a result of the direct impact of economic conditions (LaFree, 1999; Messner, 1986). Specific to the cross-national homicide literature, the positive association between increasing economic development and homicide rates that is predicted in the modernization perspective is not what is commonly found in prior studies. LaFree states in his review (1999) that economic well-being is overwhelmingly found to be negative or null in the empirical literature (LaFree & Kick, 1986; Pampel & Gartner, 1995; Messner & Rosenfeld, 1997; Neapolitan, 1994; 1996).

Studies that examine economic development and terrorism expect to find a positive relationship. Blomberg et al. (2004, p.27) found support for their notion that the economic state can influence a group to resort to acts of terrorism, specifically:

> Terrorist attacks are more likely in countries with strong institutions and strong soldiering during bad economic times or under exploitive leaders. For example, in more affluent countries with stronger defense capabilities, it would be more challenging to mount a coup, making terrorism a more attractive option.

Mullins and Young (2009, p.19) agree that terrorism is more attractive in stronger nations, and found that higher gross domestic production is significantly associated with domestic terrorism. They claim that societies with stronger governments and stable economies make it more difficult for "certain types of political resistance to succeed (i.e., civil wars, militias, etc.)." This leads resisting political members to choose terrorism over other forms of wide-spread resistance (Mullins & Young, 2009).

In opposition to some of the previous findings, Abadie (2006) used one of the more unique dependent variables found within the published literature when he examined the relationship between a terrorism risk rating score and various economic, political, social, and geographic variables for 186 countries. Using OLS regression to study GDP per capita, income inequality, political freedom, and ethnic and religious fractionalization, he failed to support the association between economic variables and terrorism. However, the data did show political freedom had a nonmonotonic effect on terrorism. Abadie's global terrorism index is problematic due to the five factors that make up a country's value.[9] Whereas, Abadie failed to find significant support for economic and social characteristics among nations, Li and his associate have published two articles that report contradictory findings for GDP per capita and terrorism (Li, 2005; Li & Schaub, 2004).

Li and Schaub (2004, p.248) found a negative relationship between economic development, examined with GDP per capita, and transnational terrorism across 112 countries using the ITERATE data set. They report that "a 1% increase in the GDP per capita of a country decreases the expected number of transnational terrorist incidents within the country by 19.3%." In a following study, Li (2005) again finds significance in the same direction for GDP per capita and transnational terrorism.

Though GDP and terrorism has mixed findings in studies at the country level (Burgoon, 2006; Li, 2005; Li & Schaub, 2004; Mullins & Young, 2009), I hypothesize

[9] Motivation, presence, scale, efficacy, and terrorism prevention are named as the five forecasting factors, yet the source of these are not identified. Comparing motivation or even terrorism prevention methods cross culturally is extremely problematic. Such aspects are often culturally specific.

that *a country's economic wealth is negatively related to their level of domestic terrorism.*

Inequality

Social class stratification is a product of economic resources and how they are allotted to societal members. The lack of material resources or the deprivation can be the motivation needed to compel individuals toward criminal violence (Messner & Rosenfeld, 1999). As a country's level of economic inequality increases, more people see the opportunities and rewards of others above their socioeconomic status as unobtainable or too difficult, thus resulting in the push toward criminal means. Whereas GDP has been used to capture absolute deprivation, income inequality emphasizes relative deprivation (Burton, Cullen, Evans, & Dunaway, 2004; Gurr, 1970).

LaFree (1999) sees the positive association between economic inequality, routinely measured using the GINI coefficient, and homicide rates as among the most consistent findings within prior literature of cross-national homicide (LaFree & Kick, 1986; Messner & Rosenfeld, 1997; Messner et al., 2002; Neapolitan, 1994; 1996). Jacobs and Richardson (2008) used moving averages to study long-term (1975-1995) cumulative relationships between homicide rates and inequality among 14 developed, democratic nations. With a fixed-effects pooled time-series design, they were able to support their hypothesis with findings that economic inequality (GINI) had a positive and significant effect on homicide rates. Jacobs and Richardson (2008) use the study's elasticities to suggest that a 10% increase in economic inequality produces an increase in the homicide rate by 4.4%.

Similar to the consistency within the homicide research, prior terrorism research shows considerable support for the inequality argument (Koch & Cranmer, 2007; Li,

2005; Li & Schaub, 2004). Koch and Cranmer (2007) used the ITERATE terrorism data set to study 68 democracies from 1975 to 1997. They found that dispersion of wealth within a country, measured by the GINI coefficient, was positive and significantly associated with terrorism (also positive yet insignificant in Li, 2005).[10] Therefore, I expect that *increases in income inequality will lead to more domestic terrorism.*

Social welfare

According to Messner and Rosenfeld (1997, p.1394), decommodification is a form of state sponsored social welfare protection that can temper social and economic strains resulting from "the vicissitudes of the market." Social welfare is, in essence, assistance to cultural members that are in need. It is a source of strain reduction. Social welfare is a structural source of informal social control and support that helps offset some of the consequences of economic strain. Messner and Rosenfeld (1997), Savolainen (2000), and Batton and Jensen (2002) have used a decommodification index to capture social support and to explain variations in cross-national homicide rates among countries. Savolainen (2000, p.1023) clarifies what is meant by the term, "Decommodification refers to the degree to which the state protects the personal well-being of its citizens from market dynamics." The decommodification process reflects the quality and quantity of social rights and protection from the state. This can temper or offset strains that result from institutional imbalance, or dominance of the economic system (Messner & Rosenfeld, 1997). Referencing Esping-Anderson (1990), Messner and Rosenfeld (1997, p.1395) list three essential dimensions of entitlements that encompass decommodification: "ease of access to them, their income-replacement value, and the

[10] Li (2005) acknowledges that the insignificance for inequality, measured by the GINI coefficient, could be due to its high correlation with GDP per capita.

range of social statuses and conditions they cover." Prior studies using the decommodification index have found considerable support for the effect of social welfare on homicide rates (Batton & Jensen, 2002; Messner & Rosenfeld, 1997, Savolainen, 2000).[11]

In regards to terrorism, Burgoon (2006) chooses to study the effect social welfare spending has on reducing domestic and international terrorism. Using a similar argument as Messner and Rosenfeld, he argues that social policies will reduce the economic insecurity, poverty, and inequality that drive some to terrorism. Burgoon (2006) used both cross-sectional and pooled time-series cross sectional estimation to examine the ITERATE data set on 95 countries from 1975 to 1995. By creating a total social security, education, and health expenditure variable that represented total welfare spending, Burgoon (2006) found a significantly negative correlation between social welfare expenditures and terrorism (both domestic and transnational). Some significance was also found with control variables: population (logged) and government capabilities (GDP per capita and share of world population) were both positively correlated with terrorism. Considering the apparent relief social welfare expenditures can give to economically strained individuals, it seems likely that *increasing social welfare expenditures of a nation will lead to decreasing amounts of domestic terrorism.*

Democracy

Another social institution discussed by Messner and Rosenfeld (1999, p.28) is a country's political system "which mobilizes resources for collective goal attainment and distributes power across social positions." Similar to the concept of social welfare, more

[11] Only partial support is found in Batton and Jensen (2002:6) where "decommodification is conceptualized as a historically variant and contextual variable."

open political systems are an avenue to relieve strain. Disagreements in society can be addressed through local political representatives and elections. Whereas, societies that are more autocratic, may not have such options toward change readily available.

Anomie leading to extreme actions, in this case domestic terrorism, is a potential consequence that arises from blocked opportunities found in less democratic society. Strain from political grievances can lead to terrorism if they are blocked legitimate opportunities (i.e., political openness) to voice those grievances. This also affects perceptions of political legitimacy (Tyler, 1990). Grievances form when the physical and material needs of societal members are not met by their government. In a similar fashion to how Rosenfeld and Messner (2006b) are describing an anomic culture born out the institutional imbalance of power, anomie and strain may arise when goals cannot be achieved or are perceived to be too difficult due to blocked legitimate opportunities associated with closed or less-open political systems. In regards to dealing with grievances, a democratic government is better equipped to listen to its constituents.

Krahn et al. (1986) examined the effects of political orientation on homicide for 50 countries at four time points (1960, 1965, 1970, and 1975). Their correlation analysis suggests that homicide rates are higher among less democratic nations. LaFree and Tseloni (2006) consider three theoretical perspectives (civilization, conflict, and modernization) in their study of homicide trends among 44 nations. Using a sophisticated longitudinal analysis, they found that violent crime was highest for transitional democracies.

Regime type is also included in studies on terrorism (Burgoon, 2006; Koch & Cranmer, 2007; Li, 2005; Mullins & Young, 2009; Wade & Reiter, 2007).[12] Burgoon (2006) used a democracy/autocracy index from the Polity IV data set as a control in his study of social spending and terrorism. He found a significantly negative correlation between democracy and terrorism. Secondly, in a study of 443 suicide attacks worldwide between 1980 and 2003, Wade and Reiter (2007) analyzed regime type and found limited support that more democratic states have more suicide terrorist incidents. Their results may potentially be biased due to the fact that more democratic societies see less press restrictions than autocratic countries (Wade & Reiter, 2007).

Taking a completely different approach to the study of democracy and violence, Li (2005) argues against the uni-dimensional view of democracy. Using the ITERATE data set to analyze 119 countries from 1975 to 1997, he separated the positive and negative effects of democracy and found that satisfaction, political efficacy, and reduction of grievances common in democracies is in direct opposition to terrorist recruiting. On the contrary, institutional or government constraints were found to promote transnational terrorism (Li, 2005). By using a disaggregated measure of democracy, Li (2005) was better able to attribute key components of democratic regimes to higher and lower levels of terrorism that were often lost in the findings of other researchers that only employ a uni-dimensional measure. Risa Brooks (2009, p.756) promotes Li's approach to the study of democracies where "the democracy and terrorism debate constitutes not one research question, but many." She addresses the notion that

[12] Koch and Cranmer (2007) find that a democratic political orientation increases the likelihood of being an international terrorist target. They used the ITERATE terrorism data set for 1975 through 1997 and a political institution database that included 68 democracies. Using random effects negative binomial regression, they found that democracy is positively associated with terrorism.

being a democracy does not always translate into political access, similar to Li's (2005, p.294) conclusion that institutional checks and balances prominent in democracies can often lead to political deadlock and increased "frustration of marginal groups." Though Li's (2005) findings are restricted to transnational terrorism, this does not dismiss the complexities of the relationship between democracy and terrorism.

On one hand, the openness found within democracy-based nations would offer more avenues to address grievances that would otherwise not exist in non-democratic states, and subsequently lead to less terrorism. In contrast, political deadlock and policy inaction are counterproductive to the reduction of grievances which can heighten public frustration and increase levels of terrorism (Dugan & Young, 2008; Li, 2005). This multi-dimensional argument of democracy can account for some of the contradictory findings in prior literature. Measuring political orientation through a democracy/autocracy dichotomy limits the theoretical understanding of any findings (Gates, Hegre, Jones, & Strand, 2006). Thus, *more restrictions on executive decision-making power will lead to increased domestic terrorism.* However, the overall benefits of democracy and grievance relief can outweigh the minimal chance that political decision-making ever reaches deadlock to the point that terrorism rates actually increase because of it. Considering this, but not to ignoring the fact that democracy is a complex variable, *countries with stronger democracies, versus autocracies, will be negatively related to their level of domestic terrorism.*

Ethnic fractionalization

Crenshaw (1981, p.383) posits that a direct cause of terrorism is a "concrete grievance among an identifiable subgroup of a larger population." Ethnic

fractionalization further perpetuates these grievances by adding another dimension of blocking upward social mobility (Fearon & Laitin, 2003). Referencing Sellin (1938), Krahn et al. (1986, p.275) suggest that culturally heterogeneous societies produce higher rates of crime "because dominant group norms proscribe the behavior valued by minority cultural groups." In reference to the prior work on racial inequality conducted by Blau and Blau (1982), Messner and Rosenfeld (1999, p.31) consider "the general thrust of their thesis is that racial inequality leads to strong pressures to commit acts of criminal violence and to weak social controls against doing so." Race, in particular, is a strong socio-demographic correlate to homicide rates, whereas disadvantaged minorities are grossly overrepresented among offenders and victims (Messner & Rosenfeld, 1999). Ethnic heterogeneity variables are common throughout cross-national homicide studies, yet to-date they fail to be consistently supported (LaFree, 1999).[13] Whereas, ethnic fractionalization has been linked to terrorism in non-empirical efforts (Crenshaw, 1981; Noricks, 2009), it struggles to be broadly studied empirically.

Population

Two theoretical arguments link age structure to the changes in overall levels of crime (Messner, 1999). One argument is compositional, in which higher overall rates of crime/violence are expected when countries have a large population of youth or young males. The second theoretical perspective, the Easterlin hypothesis, predicts that crime rates change as a function of both contextual and compositional factors. For example,

[13] On one side, Gartner (1990) finds support for ethnic heterogeneity and homicide among her study of 18 developed nations between 1950 and 1980. Contrary to these findings, McDonald (1976) reports that racial heterogeneity does not increase levels of homicide. Fearon and Laitin (2003) focused on 127 civil wars between 1945 and 1999. Their review of the relevant literature expressed that countries with more ethnic and religious diversity are associated with higher civil war risk. Fearon and Laitin's (2003) findings suggest otherwise.

Messner (1999, p.36) notes that a large youth population can lead to "labor market crowding and overburdened institutions", in turn, this influences the crime rate. Large populations exceed the capacity of available occupations and the weakened/overburdened social institutions may fail to exercise effective social control within a society. Easterlin's (1987) proposed argument has received mixed support (see Messner 1999).

A basic population argument specific to terrorism is that "states with more people should be more likely to generate individuals willing to use violence" (Mullins & Young, 2009, p.12). This is based on sheer numbers alone, thus reflecting the compositional argument. Burgoon (2006) also points out that more people equates to more targets. Population is found to be significantly correlated and in a positive direction for nearly every study that employs this measure (Burgoon, 2006; Koch & Cranmer, 2007; Mullins & Young, 2009; Li, 2005; Li & Schaub, 2004; Wade & Reiter, 2007).

Pre-existing violence

Several scholars have examined if the extent to which cultural factors or the culture of violence may explain cross-national variations in violence (Archer & Gartner, 1984; Gartner, 1990; Mullins & Young, 2009; Neapolitan, 1994). Specifically to homicide, Gartner (1990) examined 18 developed nations for a time span of 1950-1980. She found that post-war developed democracies accounted for the variation in risks of homicide. Previously, Archer and Gartner (1984) found an increase in domestic homicides followed participation in war. Furthermore, Neapolitan (1994) explored Latin American nations due to their disproportionately high rates of homicide compared to all other countries throughout the world. He attempted to explain these high rates through country level structural and demographic characteristics common to homicide. His

findings support that this region has a strong positive association with homicide rates net of the variables within the study. Neapolitan (1994) argues that this is accounted for by the cultural values of Latin American nations being more conducive to violence.

Mullins and Young (2009) specify a legitimation-habituation model to explain such cross-national violence. Specifically, the legitimation-habituation thesis expects that prior levels of illegal and legitimate violence within a society will predict current levels of violence. Using GTD data, Mullins and Young (2009) conducted a time-series cross-sectional analysis of terrorism using a zero-inflated negative binomial regression. Their main purpose was to see if a culture's general violence is significantly related to a society's level of terrorism. They included measures of violence such as country level homicide rates, the practice of capital punishment, and a recent experience with external violence such as war (lagged 1 year prior) in order to capture a "culture of violence." All violence measures were found to be significant, and two of three were in the predicted direction (capital punishment was not), concluding with the view that a culture of violence was a relevant predictor for terrorism (c.f., Li, 2005; Li & Schaub, 2004; Wade & Reiter, 2007).[14]

The previous sections were a review of the theoretical and empirical literature regarding the major structural and cultural correlates of variations in cross-national violence. The current study draws upon prior cross-national homicide research within criminology, as well as extant terrorism research within political science, as a basis for forming the theoretical expectations for the relationships between structural and cultural

[14] Mullins and Young (2009:20) state that the capital punishment findings were "an artifact of the data" where some countries had abolished capital punishment in hopes of joining the European Union while other abolition was done in the aftermath of abusive regimes.

factors and domestic terrorism at the country level. In addition, there are also criminological theories related to such macro-social structural and cultural explanations that may be amenable to explaining cross-national variations in domestic terrorism. One such theory is Messner and Rosenfeld's (1997) institutional anomie theory.

Theoretical framework: IAT

As reviewed in the previous sections, there are several perspectives within sociology and criminology (e.g., modernization, strain) that expect macro-social variables, such as economic development, to be significantly related to cross-national variations in violence. Messner and Rosenfeld's IAT essentially posits that institutional imbalance of power within a country can lead to high levels of crime caused by widespread anomie and weakened social controls. They focus on the following social institutions: economy, family, education, religion, and polity. Rosenfeld and Messner (2006) describe the normal functions of these institutions. The physical and material needs of the populace are met by the economy, political systems are in place for the population to achieve collective goals, and the management of cultural patterns and social control are the keys to family, education, and religion (Rosenfeld & Messner, 2006). The overlapping of these institutions is common, but one social institution often dominates the others (Messner & Rosenfeld, 2001).

Messner and Rosenfeld (2001, p.195) state, "The core elements of the American Dream- a strong achievement orientation, a commitment to competitive individualism, universalism, and most important, the glorification of material success- have their institutional underpinnings in the economy." For Messner and Rosenfeld (2001), the United States is distinctly different from other capitalist societies because of our inflated

weight we place on financial success and our unreserved openness for innovation, thus the United States is dominated by the economic institution. Messner and Rosenfeld (2001) claim that economic dominance weakens the ability of other social institutions to control or mold individual behavior, such that they are unable to temper the stress that results from the dominant institution. Essentially, we have "economic dominance" that is manifested in three ways: "(1) in the *devaluation* of noneconomic institutional functions and roles; (2) in the *accommodation* to economic requirements by other institutions; and (3) in the *penetration* of economic norms into other institutional domains" (Messner & Rosenfeld, 2001, p.196). Examples of each are clearly defined in Messner and Rosenfeld's (2001) work.

They explain *devaluation* with education being seen as a means for getting a good job, the knowledge itself is not the priority for most students, quality teachers rarely receive rewards that would be given in the business world, parenting becomes assumed not admired, and the lack of political involvement (i.e., voting) would rarely cause a reaction while on the contrary, not working if capable is socially degraded. Second, competing social institutions are routinely overpowered by the demands of the economy. Because of this, the dominated social institutions *accommodate* and conform for the economic institutions. Messner and Rosenfeld (2001) continue with examples. A family bases their time spent together, schedules, and vacations around their employers demands. Also, without a job, one would struggle to even raise a family. Education levels mirror the job market where higher degrees earn better paychecks. School expenditures (i.e., number of faculty or classroom materials) rely heavily on financial resources. Finally, Messner and Rosenfeld (2001) elaborate on how the economy *penetrates* its

norms into other social institutions. Grades are the basis for individual student evaluations that create competition for rewards, successful politicians are deliverers of goods, and family households are typically broken down into a "division of labor" with managers being the "breadwinner" (Messner & Rosenfeld, 2001, p.198).

Overall, the institutional imbalance of power from an overly dominant economic system may weaken social control and eventually, result in higher levels of criminal offending. Whereas, some support for IAT has been found in recent research (Chamlin & Cochran, 1995; Hannon & DeFronzo, 1998; Maume & Lee, 2003; Messner & Rosenfeld, 1997; Pratt & Godsey, 2003; Savolainen, 2000; Stucky, 2003), there are a number of researchers who found mixed support (Batton & Jensen, 2002; Cullen, Parboteeah, & Hoegl, 2004; Piquero & Piquero, 1998) or no support for the theory (Cao, 2004; Jensen, 2002).[15] However, many are partial tests of the theory, and only examine a few of the institutions and resulting dynamics. Nonetheless, IAT is a potentially useful theory for explaining levels of domestic terrorism across countries as well.

[15] See Messner and Rosenfeld (2006a) for a thorough review.

CHAPTER IV

METHODS

Terrorism is a phenomenon that is disproportionately domestic versus transnational, yet mass media and prior researchers tend to focus on the latter. The purpose of this thesis was to answer two distinct questions. First, do prior established predictors of criminal violence (i.e., economy, inequality, social welfare, political orientation, ethnic fractionalization, population, and pre-existing violence) also predict domestic terrorism at the country level? Second, will the relationship between these macro-structural and cultural variables be in the same direction as found in the previously published work? Until very recently, published articles on terrorism were relatively atheoretical and non-empirical (c.f., Dugan, LaFree & Piquero, 2005; LaFree, Dugan & Korte, 2009; Mullins & Young, 2009), however this is rapidly changing with the advent of recently compiled terrorism data sets. Drawing upon recent work on terrorism, this study used criminological theory and the GTD to explore the structural and cultural factors associated with domestic terrorism. The following hypotheses were the core focus of this thesis:

H_1: *A country's economic wealth is negatively related to their level of domestic terrorism.*
H_2: *Increases in income inequality is associated with more domestic terrorism.*
H_3: *Higher social welfare expenditures of a nation are correlated with lower amounts of domestic terrorism.*
H_4: *More restrictions on executive decision-making power are associated with increased domestic terrorism.*
H_5: *Countries with stronger democracies, versus autocracies, will be negatively related to their level of domestic terrorism.*

These hypotheses were tested using the country as the unit of analysis and the observational period covering 27 years (1970-1997). Domestic terrorism data from the

Global Terrorism Database 1.1 was combined with variables taken from other publically available data sets for all years in which the data is available.

Sample

The sample consists of 72 nations that rank in the "very high" and "high" human development categories of the Human Development Report (HDR) 2009. The Human Development Index (HDI) combines country level indicators of income, educational attainment and life expectancy into one social and economic development index (see HDR, 2009 for complete methodological explanation).[16] Table 2 identifies the summary of nations and their respective human development indicator ranking as well as the sum of domestic terrorism incidents from 1970 to 1997. Although the GTD 1.1 contains terrorism data for over a 150 nations and territories, the current analysis is limited to a sample comprised mainly of developed countries. This decision was based primarily on the view that explanatory analyses of macro-structural characteristics on lethal violence are largely based on the experiences and social processes of modern, developed nations (Archer & Gartner 1984; Gartner, 1990; Jacobson & Richardson, 1995; Pampel & Gartner, 1995). Using developed countries also poses fewer missing data issues that tend to plague developing countries. As LaFree (1999) notes, cross-national data on social and political variables, as well as homicide data, tends to be more readily available for developed countries for longer periods of time. Lastly, since the GTD is primarily drawn from media accounts, it is likely that terrorism incidents are under-estimated for developing and least developed nations because they do not have the number of media sources or the coverage that is associated with more developed countries. Thus,

[16] The HDI classification of countries into development categories is relatively consistent across other country level development classification systems (e.g., World Bank and the OECD).

Table 2

Summary of Nations by HDI Ranking

Country	Current HDI Rank	Domestic Terrorism Sum 1970-1997	Country	Current HDI Rank	Domestic Terrorism Sum 1970-1997
Albania	70	38	Latvia	48	8
Argentina	49	432	Lebanon	83	722
Australia	2	34	Libya	55	6
Austria	14	51	Lithuania	46	4
Bahamas	52	3	Luxembourg	11	13
Bahrain	39	25	Macedonia	72	2
Barbados	37	3	Malaysia	66	15
Belgium	17	48	Malta	38	9
Bosnia	76	48	Mauritius	81	1
Brazil	75	159	Mexico	53	227
Brunei	30	1	Netherlands	6	44
Bulgaria	61	23	New Zealand	20	7
Canada	4	18	Norway	1	6
Chile	44	1422	Oman	56	0
China	24	52	Panama	60	86
Colombia	77	3271	Peru	78	3469
Costa Rica	54	27	Poland	41	22
Croatia	45	11	Portugal	34	63
Cuba	51	23	Qatar	33	1
Cyprus	32	63	Romania	63	9
Czech Republic	36	9	Russia	71	214
Czechoslovakia	*	7	Saudi Arabia	59	9
Denmark	16	25	Singapore	23	6
Ecuador	80	125	Slovakia	42	9
Estonia	40	8	Slovenia	29	5
Finland	12	3	South Korea	26	16
France	8	1136	Spain	15	1474
Germany	22	540	Sweden	7	22
Greece	25	316	Switzerland	9	37
Hungary	43	26	Trinidad and Tobago	64	10
Iceland	3	4	Turkey	79	1142
Ireland	5	47	United Arab Emirates	35	7
Israel	27	1062	United Kingdom	21	1170
Italy	18	883	United States	13	633
Japan	10	238	Uruguay	50	56
Kuwait	31	34	Venezuela	58	147
Total		19886			

* Czechoslovakia split in 1993 to form the Czech Republic and Slovenia.

restricting the analysis to developed nations can overcome some of the potential reporting biases associated with using media reports of terrorism. However, there are certainly limitations of using a restricted sample comprised mainly of developed nations.

LaFree (1999) argues that a major limitation of the current cross-national violence literature is that it has been based on a non-random set of countries. This results in four problems. First, much of what is known about the correlates of cross-national violence pertains mainly to Western industrialized countries. It is unclear if such results are generalizable in other countries with different social and political systems. Second, most studies use a small number of countries, thus results may be highly sensitive to outliers, and this is particularly problematic for analysis of rare outcomes at the macro-level. Third, the range of independent variables that can be included in the model is also restricted given the small sample size and the overall availability of data. Finally, there are often computational problems (e.g., severe multi-collinearity) associated with conducting traditional statistical analyses on a small sample of countries. As a result of these critiques of the extant cross-national violence literature as well as recent advancements in data availability for a broader set of countries, many scholars have taken the alternative approach of analyzing a much larger, diverse set of countries (Messner, 1989; Mullins & Young, 2009; LaFree & Tseloni, 2006).

For example, Mullins and Young (2009) have conducted cross-national research incorporating underdeveloped and developed nations and found that nations characterized by a culture of violence also have more domestic terrorism events over time. They used a much larger and diverse sample of countries (n = 174) over a longer period of time, which subsequently resulted in extensive missing data. To overcome these problems, they supplemented their listwise deletion based analyses with analyses based on multiple imputation techniques (see Allison, 2002), and found similar results. Thus, more recent research has utilized sophisticated statistical techniques to account for missing data at the

country level. The limitations of the current approach and the resulting implications of the findings are discussed in the concluding chapter.

Variables and data sources

Dependent variable

The outcome variable used in the current study is originally taken from the Global Terrorism Database 1.1 (GTD). The GTD is a continuously updated data set that combines prior data collected by the Pinkerton Global Intelligence Service (PGIS) on every terrorist incident found in media accounts from 1970 to 1997 (National Consortium for the Study of Terrorism and Response to Terrorism, 2009).[17] PGIS used a broad terrorism definition of "the threatened or actual use of illegal force and violence by a non state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (LaFree & Dugan, 2007, p.184). LaFree and Dugan (2007, p.188) clarify that two of three elements had to be present for the incident to be included in the data set:

(1) The act must be aimed at attaining a political, economic, religious, or social goal. In terms of economic goals, the exclusive pursuit of profit does not satisfy this criterion (terrorist group fundraising is recorded).
(2) There must be evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) than the immediate victims.
(3) The action must be outside the context of legitimate warfare activities; that is, the act must be outside the parameters permitted by international humanitarian law.

Domestic terrorism is defined based on the "lack of any known foreign involvement" (LaFree & Dugan, 2007, p.185). Recent work using the GTD data has disaggregated domestic events from international terror events (Mullins & Young, 2009)

[17] Data from 1993 was previously misplaced by PGIS during an earlier move, prior to the University of Maryland data team obtaining it. The missing data were missing completely at random and thus, the parameter estimates should not be affected by systematic bias (Allison, 2002).

using information taken from the "Target Entity" variable within GTD 1.1. The entity field refers to the type of organization, agency, individual, etc. that was the target of the attack. The first step in the coding process involved selecting only those terrorism incidents in which there was valid (i.e., known) information on the target entity. Second, all known entities that were affiliated with non-domestic associations, agencies or origin were coded as transnational (see Mullins & Young, 2009 for a complete review). Such cases as foreign business were coded as non-domestic while all military targets were excluded. Ambiguous cases were also disregarded.[18] Although there are certainly limitations with ensuring that all cases in the analysis are domestic cases, this measure of domestic terrorism provides a useful and meaningful starting point for the current study. Alternative conceptualizations and measurements, and the subsequent implications for domestic terrorism research are discussed in the concluding chapter.

The annual counts of domestic terrorism were transformed into an average number of domestic terrorism events per country for a given time period. A series of pooled contemporaneous and time ordered cross-sectional analyses using different lengths of the observational period were conducted. The outcome at each analysis reflects the average level of domestic terrorism for the time period examined in the analysis. For example, the multivariate analyses began with a model that uses the structural and cultural correlates to predict average domestic terrorism across the countries for the entire time period. Subsequent sensitivity analyses examined the same question in separate,

[18] Young and Dugan (2008) found that ambiguous cases resemble domestic ones, while foreign cases were the only kinds that seem to have different explanatory factors. It seems likely that since the majority of terrorism acts are domestic, most of the ambiguous cases are likely to be in this category.

shorter sub-intervals of time, and the outcome during those analyses reflects the average domestic terrorism level for the corresponding time period.

Independent variables

A codebook was created to visually clarify the concepts, variables, and chosen measurements for all variables in the model (see Appendix A). This study used per capita gross domestic product (GDP) in US dollars data from the World Bank World Development Indicators (2005) as an indicator of economic development.

The GINI coefficient measures the level of income inequality or relative deprivation within a country (see Messner et al. 2002; World Income Inequality Database United Nations, 2000; see also Deininger & Squire, 1996). Following prior recommendations (Messner et al., 2002) this study only used those GINI indicators that are designated as high quality, based on gross income, and examine the household as the reference unit and estimate the entire population. In some instances multiple GINI indicators met these criteria. Following previous work, the average of the valid indicators was taken (Messner, et al., 2002).

Social welfare is expressed through a decommodification index developed by Messner and Rosenfeld (1997). Messner and Rosenfeld (1997) constructed a proxy measure of social welfare on the national level by incorporating data for expenditures on social security programs, the sources of funding, and the varying expenditures across programs such as unemployment benefits, work-related injuries, and family allowances (see Messner & Rosenfeld, 1997, for a complete review). The International Labor Office (ILO) compiled the original data.

Democracy is measured using Gates et al.'s (2006) Scalar Index of Polities. This regime indicator ranges from 0 to 1 with higher values approaching an stronger

democracy and lower values equating to a stronger autocracy. Gates et al. (2006) averaged scores along three institutional dimensions of how executives are elected (based on recruitment, competition, and openness of recruitment), constraints on executive decision-making power, and political participation (recent election total voter turnout and competition between parties). This measure is preferred over other polity indicators that are uni-dimensional (Dugan & Young, 2008; Mullins & Young, 2009), such as Koch and Cranmer (2007).

Control variables

The four independent variables are expected to account for a significant amount of cross-national variation in domestic terrorism. Multiple control measures were included to minimize the potential of model mis-specification and omitted variable bias. The ethnic fractionalization variable came from Fearon and Laitin's (2003) internal instability study. They provide a measure that includes the ethno-linguistic fractionalization (ELF) index from Atlas Narodov Mira 1964 data, which estimates the "probability that two randomly drawn individuals in a country are from different ethnolinguistic groups" (Fearon & Laitin, 2003, p.78). This measure also includes CIA World Factbook estimates on the share of a country's population in the largest ethnic group, and the number of separate languages spoken by at least 1% of the population.[19]

As presented in the literature review, population is often included in empirical research on cross-national terrorism and homicide (Burgoon, 2006; Dugan & Young, 2008; Koch & Cranmer, 2007; Mullins & Young, 2009; Li, 2005; Li & Schaub, 2004; Wade & Reiter, 2007). This study incorporates a logged measure of population from the

[19] Fearon and Laitin (2003) filled in missing values using the CIA World Factbook, Encyclopedia Brittanica, and the Library of Congress Country Studies for all measures.

World Health Organization. Two other control variables relevant to country population are the age and sex distribution of the population. It is common to include a variable that estimates the sex ratio (number of males per hundred females) and the youth percentage of the total population (commonly expressed as percent aged 15-29) in cross-national homicide research (Gartner, 1990; Messner & Rosenfeld, 1997; Messner et al., 2002; Pampel & Gartner, 1995). This is based on the amassed prior literature that relates more male-dominant and youthful populations to higher rates of criminal offending (LaFree, 1999). This study uses data taken from the World Health Organization to measure both control variables.[20] I also included a control variable to capture region of the world (categorically divided into 5 regions) in subsequent sensitivity analysis.[21]

Considering the findings of Mullins and Young (2009) that violent cultures are associated with higher levels of terrorism, this study includes a control measure that attempts to capture pre-existing violence. Homicide data is generally considered the most reliable and valid form of violent crime data across different historical and cultural contexts (Batton & Jensen, 2002; LaFree, 1999). For example, Batton and Jensen (2002, p.15) have stated that "homicide is advantageous as an indicator of historical violence levels because it is less subject to definitional ambiguity, it is more likely to be reported

[20] The sex ratio and percent of a country's total population aged 15-29 was derived from WHO data that has some country to country variations in sampling. In most cases, estimates come from general population data, yet in one country specific case (China), estimates only reflect portions of that country's population (urban). If multiple population estimates were provided, the broadest coverage (i.e., total population over urban) was chosen.

[21] Initially, a nine category variable (LaFree, Morris, & Dugan, 2009) was used to separate countries within the GTD. A comparison was conducted between a five region variable in Mullins and Young's (2009) Culture of Violence data set and LaFree et al.'s (2009) variable. The nine region variable coincided almost exclusively to the five region variable except that it separated Europe into Eastern and Western, Americas was separated into Latin and North America, and three subcategories of Asia were present instead of one. Nonetheless, little is lost by using the five region variable. Cyprus was, however, recoded into the Middle East region over the initial Europe region code.

to authorities, and it indexes other forms of violence." Although there are several sources of international crime data, this study uses data taken from the World Health Organization (WHO). The WHO collects national statistics for nearly 200 countries and territories on 70 core health indicators (http://www.who.int), however annual historical coverage for all countries is not as consistent and severely limited. Homicide data from the WHO are generally considered among the most reliable measures of cross-national homicide (see LaFree, 1999) and it measures the number of deaths due to homicides per 100,000 people within a country's population. A lagged measure of homicide rates was included in the time ordered cross-sectional analysis, but not the pooled contemporaneous cross-sectional analysis of domestic terrorism.[22]

An alternative measure of cultural violence includes involvement in a recent major war and the Political Terror Scale (PTS). Mullins and Young (2009) argue that the PTS (originally collected by Amnesty International and U.S. State Department Country Reports) captures cultural violence because it measures the level (severity) and scope of state sanctioned abuses towards civilians (e.g., political imprisonment, disappearances, torture, and killings). The PTS scale measures state sanctioned abuses on a 5 point scale and has been validated with other pre-existing scales of abuses by the state (see Mullins & Young, 2009; Gibney & Dalton, 1996).

[22] Due to the operationalization and broad definition of terrorism employed by the GTD, there is a possibility for overlap of homicide (an independent variable) and domestic terrorism counts (the outcome variable) in the contemporaneous analysis.

Analytical strategy

Bivariate analyses

Using the incident level and the country level database, a series of correlation matrices were generated for the pooled sample of countries displaying bivariate correlations between all of the variables included in the model. Additionally, using the incident level data base, similar correlation matrices were generated for each country included in the analysis. In addition to the variables already specified, these matrices also include the non-transformed outcome (counts of domestic terrorism), as well as the number of total events and transnational events for descriptive purposes.

A series of diagnostics to detect problematic multi-collinearity between the predictor variables were also conducted. If high multi-collinearity exists, estimation produces large standard errors for slope coefficients, and produces unreliable estimates (Lewis-Beck, 1980). In addition to examining a correlation matrix for correlations .80 or greater, a common test of multi-collinearity is to regress each independent variable on all other independent variables (Berry & Feldman, 1985; Lewis-Beck, 1980). If the explained variance (R^2) is close to 1.00 in any of these analyses then high multi-collinearity is present. Lewis-Beck (1980) states that the largest R^2 value obtained is an indicator of the degree of multi-collinearity present in the model.

Results from these diagnostic tests indicated that although many of the variables are highly correlated with each other, multi-collinearity is particularly problematic as it pertains to economic inequality (GINI) and decommodification ($R^2 = 0.701$). The correlation between GINI and decommodification ($r = -0.837$, Table 6) exceeds the threshold suggested by conventional multi-collinearity diagnostics. Additionally, VIF (variance inflation factor) statistics from the full model indicated that with

decommodification included, VIF's were well over the standard convention of 4 (e.g., 15.216).[23] As a result, the decommodification variable was taken out of the analysis. A previously proposed region variable was also deleted for the lack of variation across the sample of countries.[24]

Multivariate analyses

Short and long-term cross-sectional analyses.

This study uses a series of short and long term contemporaneous and time ordered cross-sectional analyses to examine the associations between structural and cultural variables and average levels of terrorism across countries. Using averages of all the variables for the entire 27 year time span (1970-1997), I conducted a contemporaneous cross-sectional analysis, regressing the average domestic terrorism level on all predictor variables. A series of reduced models culminating in a full model with all co-variates included was also conducted to examine the possibility of suppression effects (addition of control variable results in a previously non-significant variable becoming significant), mediation effects, as well as high collinearity between the predictor variables (Berry & Feldman, 1985). The long-term contemporaneous cross-sectional analysis allowed me to examine the overall relationship between the predictor variables and domestic terrorism across the sample of countries for the 27 year time span.

[23] Results from the diagnostics are available upon request.

[24] By reducing the scope to only include developed countries, variation in region outside of the three largest categories (i.e., Americas, Europe, and Northern Africa/Middle East) is relatively nonexistent. Whereas, region as a control variable was initially included, it was later taken out because it failed to add much substance to the regression models. It would be more beneficial as a variable with a broader research design that might include a larger number of countries across the economic spectrum.

A major drawback of this approach, however, is that it assumes that the pooled time span (27 years) indeed reflects one period in time (one contiguous *stable* period), thus it assumes that the independent and dependent variables are relatively stable within this time period. As Menard (1991) notes this is a set of assumptions that are often untenable, especially with longer time spans; the assumption that all of the measurements are stable across the time span becomes less plausible. Following the approach of Messner et al. (2002), I examined the robustness of this assumption and the results obtained from the long term contemporaneous cross-sectional analysis by conducting a set of similar analyses on 3 shorter intervals of time consisting of approximately 7 to 11 years each: 1970 to 1979 (10); 1980 to 1990 (11); 1991 to 1997 (7). These time periods were chosen on the basis of prior research regarding the effects of certain structural variables on homicide (Messner et al., 2002; Savolainen, 2000), and are referred to as the short-term contemporaneous cross-sectional analyses. All analyses were conducted using all of the available data for all countries during each given time period, and sensitivity tests using a corresponding listwise deletion sample was also conducted. This resulted in a series of long and short-term contemporaneous cross-sectional analyses that cover the entire 1970-1997 period, as well as sub-intervals of time.[25]

All of the contemporaneous analyses examined the direct effects of the structural and cultural variables on overall levels of domestic terrorism in the short and long term. For example, this study examines if a country's level of development is statistically correlated with levels of domestic terrorism during a given time period, net of other relevant structural and cultural correlates. Prior literature also indicates that many of the

[25] Additional sensitivity analyses were conducted to examine robustness of findings to outliers and changes in geographic boundaries over time (e.g., Former USSR countries).

structural and cultural correlates used in the current study potentially have causal relationships with domestic terrorism. Although the current study uses longitudinal data, it does not use a time series analysis and as a result is unable to establish temporal ordering and causality. An alternative approach that would allow for full maximization of the data would be some type of longitudinal analysis such as a pooled time series analysis or multi-level analysis (Gartner, 1990; Pampel & Gartner 1995; LaFree & Tseloni, 2006; Mullins & Young, 2009).

A less sophisticated but related statistical approach that may shed some light on the issue of causality and temporal ordering is a time ordered cross-sectional analysis, which is a cross-sectional analysis that includes lagged independent variables (Menard, 1991). The next section briefly describes the analysis for this stage of the proposed analytic strategy.

Short and long-term time ordered cross-sectional analyses.

In this stage of the analysis, all of the independent variables were lagged in time prior to the domestic terrorism outcome. Using the data from 1970 to 1990, all of the aforementioned predictor variables were averaged over time, and used to predict subsequent levels of domestic terrorism (1991-1997). Multiple regression techniques were also used in this portion of the analysis, as well as a series of reduced and full models. Next, to test the robustness of the time ordered cross-sectional results over shorter or different historical periods, a similar analysis was conducted using a different time span. Averages of the all the predictor variables were created using data from 1991 to 1994 to predict average levels of domestic terrorism for the period 1995 to 1997. Slicing the data in this manner may allow for an inspection of the robustness of the

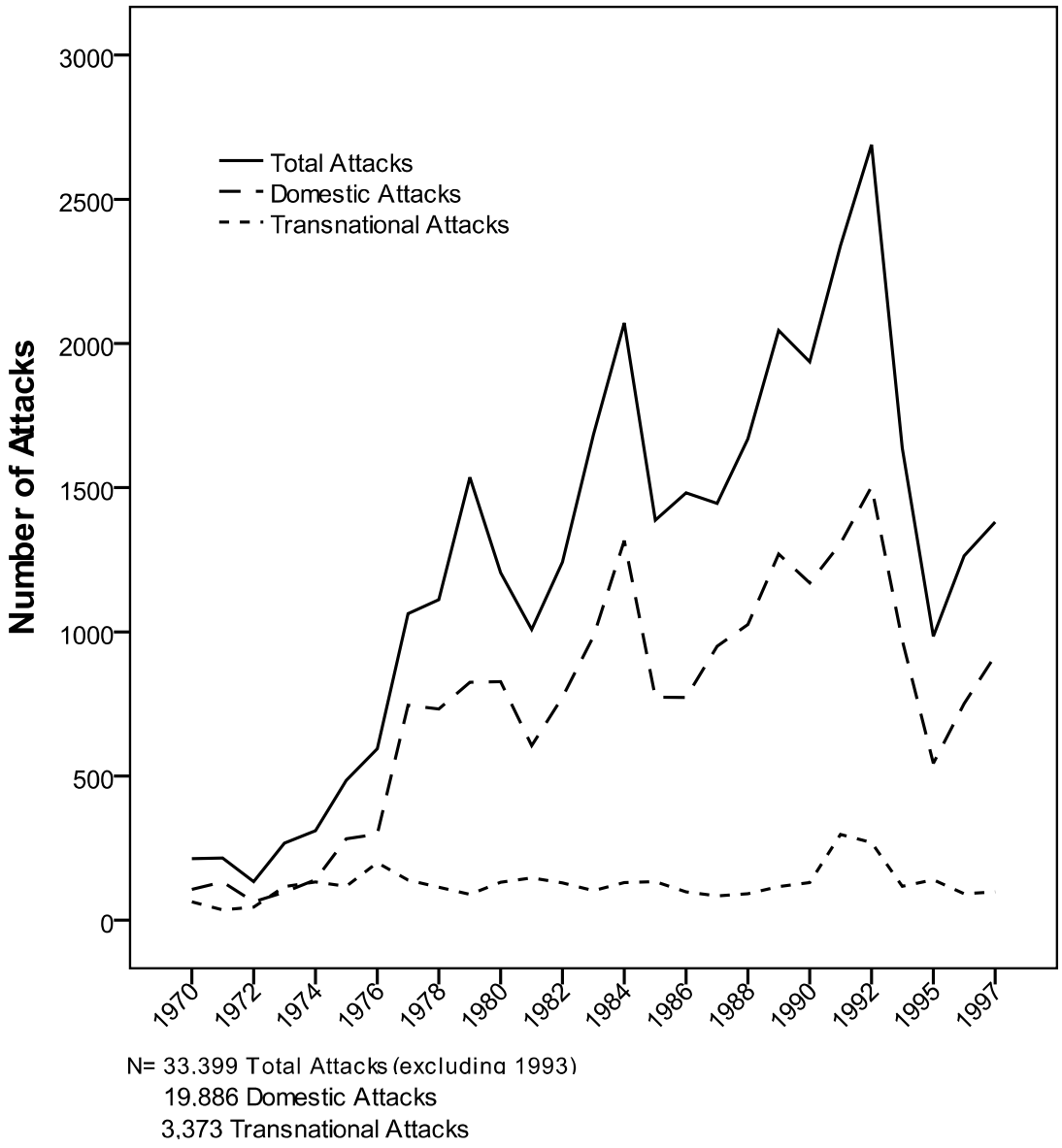
findings generated from the earlier analysis, and it also allows for an examination of the relationship between structural/cultural variables and domestic terrorism among transitional countries (e.g., Estonia, Latvia, and Lithuania). All of the aforementioned sensitivity tests used both pairwise and listwise deleted data sets and checks for outliers.

CHAPTER V

FINDINGS

Figure 1 presents the distribution of total terrorism attacks for the entire twenty-seven year time span (1993 was excluded due to lost data from the original source). The data include 33,399 total attacks, 19,886 domestic attacks, and 3,373 transnational attacks. Adding the domestic with the transnational attacks does not total 33,399 due to the fact that 10,140 ambiguous cases were excluded from Mullins and Young's (2009) domestic/transnational coding. The overall trend shows a dramatic increase from the early 1970s until a sharp decline following 1992 (the highest point). Three prominent peaks are present around 1979, 1984, and 1992 for both domestic and total attacks. Transnational attacks remained relatively stable throughout 1970 to 1997 with minor increases around 1976 and 1991. The percent change score for the entire time period was a 758% increase in domestic terrorism, a 53% increase in transnational terrorism, and a 545% increase in total attacks from 1970 to 1997. It should be noted that these increases may in part be due to advancements in the data collection process. Nevertheless, the percent change from the lowest year recorded (1972) to the highest peak (1992) was 2,250% increase for domestic, 487% increase for transnational, and 1,907% increase in total attacks. Total attacks recorded in 1972 were a mere 134 compared to 1992's peak of 2,689 total attacks. All three peaks were followed by a relative decline.

Figure 1

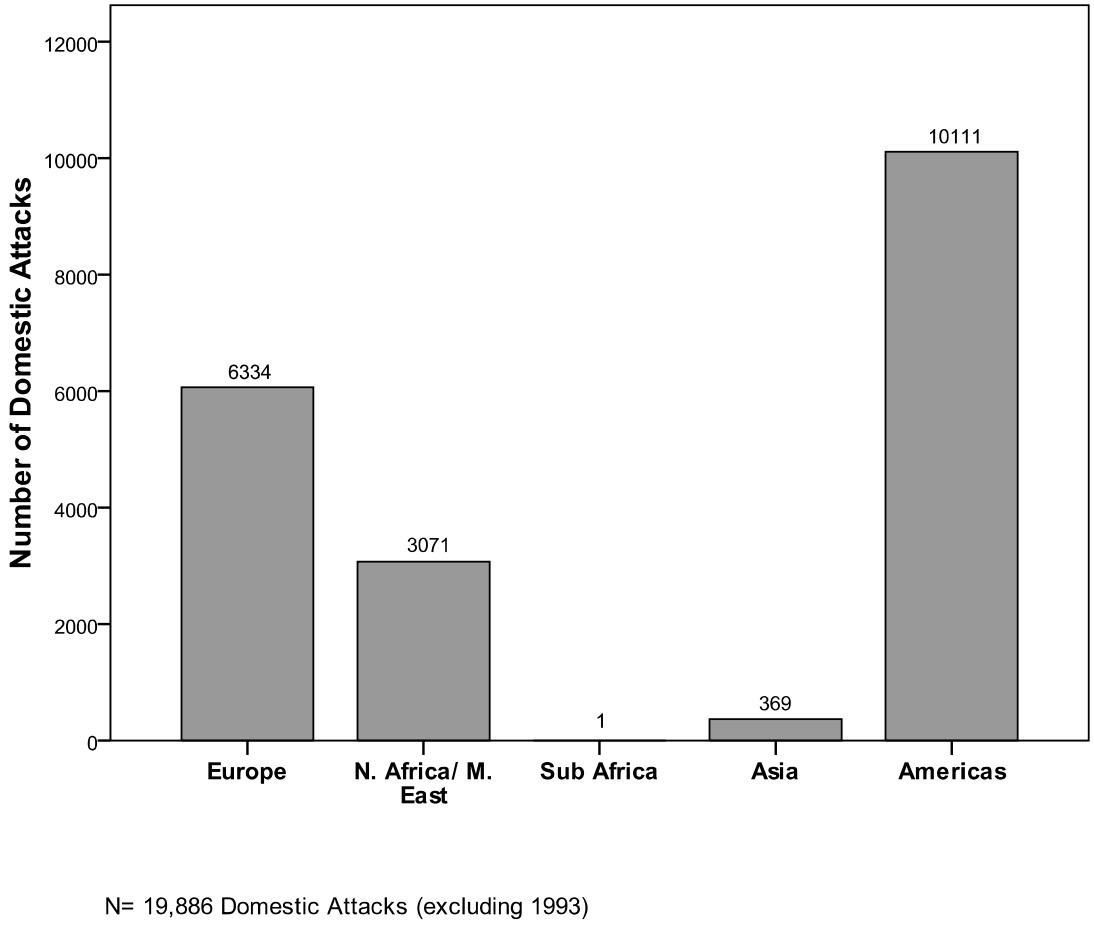


Distribution of Total Terrorism, 1970-1997

Domestic attacks by region were examined within the geographical boundaries of Europe (35 nations), North Africa/Middle East (11 nations), Sub Africa (1 nation), Asia (8 nations), and the Americas (17 nations) (see Figure 2). Above the bar graph is the total number of domestic terrorism attacks within that region for the entire time span. The

Americas has a disproportionately higher number of total domestic attacks (10,111) even though it has eighteen fewer countries than Europe. This is partially attributed to smaller sized countries making up most of the 35 European nations, as well as some outliers within Latin America (i.e., Colombia (3,271) and Peru's (3,469) total domestic attacks from 1970 to 1997, see Table 2). Sub Africa is represented with one nation (Mauritius) that met the criteria of inclusion of developed countries according to the Human Development Report (2009).

Figure 2



Total Domestic Attacks by Region, 1970-1997

Descriptive statistics were separated into two tables based on the use of an incident level and country level data set (see Tables 3 & 4). Among the incident level descriptive statistics, sample sizes fluctuate from 311 country-year observations for the economic inequality variable to 1797 country-year observations for the three measurements of terrorism. These sample size variations are mirrored in the country level table as well (N ranges from 37 to 72).

Table 3

Descriptives for Developed Nations, 1970-1997 (Incident Level)

Variable	N	Mean	Median	Std. Deviation	Min	Max
Domestic Terrorism	1797	11.07	0.00	36.62	0.00	404.00
Transnational Terrorism	1797	1.88	0.00	5.13	0.00	70.00
Total Terrorism	1797	18.59	1.00	57.63	0.00	548.00
Economic Development	1405	10277.23	7550.63	8795.92	113.52	54239.26
Economic Inequality	311	31.39	30.34	6.96	19.60	53.34
Decommodification	1036	0.58	0.21	1.95	-2.16	4.62
Democracy	1664	0.64	0.89	0.39	0.00	0.98
Ethnic Fractionalization	1607	0.25	0.20	0.20	0.00	0.75
Population (log)	1586	9.23	9.19	1.59	5.40	14.02
Sex Ratio (m per 100f)	1325	98.01	97.41	6.66	85.46	159.58
Percent Population 15-29	1323	24.68	24.13	3.18	14.47	34.68
Homicide Rate per 100k	1337	4.40	1.79	8.12	0.00	87.75
Recent War	1791	0.03	0.00	0.18	0.00	1.00
Political Terror Scale	1281	2.10	2.00	1.12	1.00	5.00
Transitional Nation	1797	0.06	0.00	0.24	0.00	1.00

A number of interesting findings are prevalent in the aggregate descriptives from Table 4. Specific to the measures of terrorism, the average number of domestic terrorism events for the countries in the sample is 10.05. The median is 1.21 events. This indicates that the data is skewed, and suggests the presence of extreme outliers. Likewise, the total terrorism measure reports a 16.91 mean, a 2.21 median, and a 193.25 range. Domestic terrorism has a skewness of 3.579 while total terrorism is skewed at 3.290. This indicates that modeling techniques that rest on the assumption of normality may not be appropriate.

Implications of this are discussed in the conclusion. The distribution of the homicide rate is also skewed (4.249) with a mean of 4.53, a 1.83 median, and a 48.36 range.

Table 4

Descriptives for Developed Nations, 1970-1997 (Country Level)

Variable	N	Mean	Median	Std. Deviation	Min	Max
Domestic Terrorism	72	10.05	1.21	22.79	0.00	123.89
Transnational Terrorism	72	1.76	0.46	2.84	0.00	10.39
Total Terrorism	72	16.91	2.21	36.83	0.00	193.25
Economic Development	62	9051.07	5493.93	8179.42	289.47	33549.44
Economic Inequality	37	32.41	31.17	7.40	20.77	52.55
Decommodification	37	0.58	0.21	1.97	-2.16	4.62
Democracy	68	0.65	0.79	0.32	0.00	0.97
Ethnic Fractionalization	65	0.27	0.24	0.20	0.00	0.75
Population (log)	64	9.10	9.08	1.55	5.96	13.84
Sex Ratio (m per 100f)	62	98.39	97.56	8.61	86.58	142.55
Percent Population 15-29	62	24.77	24.06	2.93	19.41	32.40
Homicide Rate per 100k	62	4.53	1.83	7.13	0.00	48.36
Political Terror Scale	70	2.06	1.86	0.98	1.00	4.40
Transitional Nation	72	0.15	0.00	0.36	0.00	1.00

Correlation matrices are in Tables 5 and 6 using pairwise deletion. Listwise deleted correlation matrices are presented in Tables 1 and 2 in Appendix B. Among the correlations in Table 5 for the incident level data set, it is logical to see higher correlations between economic inequality and decommodification ($r = 0.652$), as well as decommodification and economic development ($r = -0.728$). Countries with social welfare spending plans in place may reduce the financial inequalities among its population, often times these are wealthier societies. All of the correlations described above were significant at the .01 level.

Table 5

Correlation Matrix for Incident Level of Developed Nations, 1970-1997 (Pairwise deletion)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Domestic Terrorism	1.000													
2. Transnational Terrorism	.526 **	1.000												
3. Total Terrorism	.978 **	.589 **	1.000											
4. Economic Development	-.104 **	-.080 **	-.107 **	1.000										
5. Economic Inequality	.126 *	.065	.110	-.231 **	1.000									
6. Decommodification	-.154 **	-.041	-.153 **	.652 **	-.728 **	1.000								
7. Democracy	.131 **	.161 **	.147 **	.289 **	-.144 *	.425 **	1.000							
8. Ethnic Fractionalization	.037	-.018	.029	-.074 **	.257 **	-.223 **	.069 **	1.000						
9. Population (log)	.247 **	.268 **	.260 **	.172 **	.413 **	.044	-.105 **	-.092 **	1.000					
10. Sex Ratio (m per 100 f)	-.043	-.053	-.046	-.002	.058	-.311 **	-.233 **	-.038	-.299 **	1.000				
11. % Population 15-29	.002	-.041	-.009	-.377 **	.432 **	-.598 **	-.214 **	.089 **	-.167 **	.401 **	1.000			
12. Homicide Rate per 100k	.349 **	.189 **	.370 **	-.314 **	.588 **	-.396 **	-.065 *	.004	.223 **	-.080 **	.206 **	1.000		
13. Recent War	-.004	.015	-.007	.014	.113 *	-.001	.011	-.007	.122 **	.001	-.007	-.028	1.000	
14. Political Terror Scale	.340 **	.220 **	.348 **	-.524 **	.393 **	-.533 **	-.462 **	-.039	.239 **	.133 **	.256 **	.434 **	-.006	1.000

Significance levels * ≤ .05. ** ≤ .01. (2-tailed).

Table 6 is the correlation matrix for the country level data set. Most all of the variables are significantly correlated in the hypothesized direction. For example, decommodification is highly and significantly correlated to a majority of other variables such as with economic inequality (r = -0.837), percent of the population aged 15-29 (r = -0.738), economic development (r = 0.684), political terror scale (r = -0.614), and democracy (r = 0.543). The political terror scale is moderately correlated with economic development (r = -0.548), economic inequality (r = 0.515), and democracy (r = -0.546). All of these correlations were significant at the .01 level.

Based on the literature review, I expected a number of empirical associations between terrorism and the development based measures (i.e., GDP, GINI, decommodification, and democracy). Although economic development, decommodification, and economic inequality were all in the expected direction, economic inequality was the only variable that was significant ($P < .05$) and showed a moderate association (r = 0.358). Economic inequality was significantly correlated (r = 0.358, $P < .01$) with domestic terrorism, as well (r = 0.316, $P < .05$) with transnational terrorism, and (r = 0.349, $P < .01$) with total terrorism. This lends support to Koch and Cranmer's (2007) findings that the dispersion of wealth within a country, measured by the GINI coefficient, is positive and significantly associated with terrorism. Lastly, pre-existing violence, measured by homicide rates and a political terror scale, and logged population all have positive associations with terrorism that are significant. The Pearson coefficients for the pre-existing violence variables are consistently around .4 to .45 for all three terrorism outcomes except for homicide rate and transnational terrorism. Similarly, the logged population variable is correlated with domestic terrorism (r = 0.317, $P < .05$),

Table 6

Correlation Matrix for Country Level of Developed Nations, 1970-1997 (Pairwise deletion)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Domestic Terrorism	1.000												
2. Transnational Terrorism	.745 **	1.000											
3. Total Terrorism	.992 **	.773 **	1.000										
4. Economic Development	-.108	-.090	-.112	1.000									
5. Economic Inequality	.358 **	.316 *	.349 **	-.346 *	1.000								
6. Decommodification	-.234	-.077	-.226	.684 **	-.837 **	1.000							
7. Democracy	.081	.119	.096	.315 *	-.308 *	.543 **	1.000						
8. Ethnic Fractionalization	.022	-.041	.011	-.167	.143	-.229	.096	1.000					
9. Population (log)	.317 *	.458 **	.324 **	.129	.002	.049	-.149	-.187	1.000				
10. Sex Ratio (m per 100 f)	-.019	-.075	-.022	.115	.314 *	-.325	-.358 **	-.088	-.261	1.000			
11. % Population 15-29	.115	-.050	.108	-.333 *	.645 **	-.738 **	-.319 *	.000	-.051	.596 **	1.000		
12. Homicide Rate per 100k	.395 **	.238	.401 **	-.313 *	.467 **	-.439 **	-.133	-.010	.237	-.132	.175	1.000	
13. Political Terror Scale	.449 **	.422 **	.454 **	-.548 **	.515 **	-.614 **	-.546 **	-.022	.252 *	.233	.373 **	.358 **	1.000

Significance levels * ≤ .05. ** ≤ .01. (2-tailed).

transnational terrorism ($r = 0.458$, $P < .01$), and total terrorism ($r = 0.324$, $P < .01$).

Walker and Madden (2009, p.228) make it a point to clarify that "correlation does not equal causation." They argue that empirical association is necessary to support a causality argument but is often only the starting point. Regression models follow in order to support or contest previous arguments. Using listwise deletion reduced the sample size dramatically. Given the type of missing data in the current study, Allison (2002) considers pairwise deletion advantageous because it maximizes the use of available non-missing cases. In light of this, tables 7 through 11 use pairwise deletion. All of these models were also estimated using listwise deletion. Those subsequent tables are found in Appendix B.

Multivariate analysis

Table 7 presents results from the ordinary least squares (OLS) regression for the entire twenty-seven year time span on domestic terrorism. As previously noted, decommodification created a multi-collinearity issue with the model; therefore it was taken out of the regression analysis. As predictor variables are added from model A to model E, the percent of variance in the dependent variable the model explains increases from nearly 11% to almost 43% in the entire model. Population was also positively related to terrorism across all models.[26] Countries with larger populations are the targets of more domestic terrorism. Hypothesis 1, that a country's level of economic development would be associated with more domestic terrorism, was inconclusive in direction and lacked significance. Hypothesis 2 was supported in direction and significance. A one-unit increase in a country's GINI coefficient leads to a 0.964 increase

[26] Multi-collinearity issues associated with adding certain variables into the model, mainly PTS, impacted the estimates for other variables, such as the lack of significance for population in Table 7 model E.

in domestic terrorism. The addition of one of the cultural violence measures (political terror) decreased the economic inequality coefficient from 0.964 to 0.555. However, hypothesis 5 which asserted that stronger democracies would be negatively related to their level of domestic terrorism was unfounded in direction (b = 21.229 and 32.622) but statistically significant at the .01 level.

Table 7

Regression Analysis for Long Term Pooled Sample (Pairwise deletion)

	Model A	Model B	Model C	Model D	Model E
Population (log)	4.466 **	4.659 **	4.365 **	4.999 ***	2.233
	(1.740)	(1.796)	(1.780)	(1.738)	(1.819)
Ethnic Fractionalization	9.544	7.172	3.341	-1.601	1.242
	(14.616)	(15.175)	(15.085)	(14.695)	(13.474)
Economic Development		0.000	0.000	0.000	0.000
(Centered)		(0.000)	(0.000)	(0.000)	(0.000)
Economic Inequality			0.802 **	0.964 ***	0.555 *
(Centered)			(0.323)	(0.320)	(0.320)
Democracy				21.229 **	32.622 ***
(Centered)				(9.817)	(9.692)
Political Terror Scale					13.898 ***
(Centered)					(4.447)
N	63	62	55	55	55
R^2	0.107	0.127	0.230	0.303	0.429
Adj. R^2	0.075	0.076	0.163	0.225	0.351

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).
Unstandardized B coefficients on top line, standard errors in parentheses.
Constant omitted from tables.

Table 8 presents results using the same predictor variables to examine domestic terrorism at three different time points, and the entire span time (1970 to 1997) with two key outlying countries removed. Again, the population variable was statistically significant (P < .01) and positively associated with domestic terrorism across nearly all

models. Democracy and the political terror variables were the only two significant findings in the 1980's and 1990's. For both time periods, an increase in strength of a democracy (measured as a scale) and a higher recorded amount of political terror both lead to increases in the amount of domestic terrorism at the country level.

Table 8

Short-Term Cross-Sectional Analysis and Outliers (Pairwise deletion)

	Time 1 1970-1979	Time 2 1980-1990	Time 3 1991-1997	Outliers Removed 1970-1997	Outliers Removed 1970-1997
Population (log)	4.384 **	-2.896	1.661	2.682 **	3.628 ***
	(1.596)	(3.792)	(2.432)	(1.117)	(1.012)
Ethnic Fractionalization	-1.458	23.734	4.933	-2.809	-3.816
	(12.537)	(28.503)	(18.026)	(8.584)	(8.789)
Economic Development	8.532	0.001	0.001	0.000	-7.498
(Centered)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Economic Inequality	0.393	0.142	0.317	0.320	0.433 **
(Centered)	(0.327)	(0.665)	(0.448)	(0.199)	(0.193)
Democracy	13.381	59.987 ***	30.060 **	18.607 ***	13.545 **
(Centered)	(8.030)	(18.627)	(12.173)	(6.290)	(5.779)
Political Terror Scale	0.490	39.774 ***	15.644 ***	5.273 *	
(Centered)	(3.535)	(9.748)	(5.100)	(2.917)	
N	28	38	51	53	53
R^2	0.405	0.506	0.399	0.358	0.308
Adj. R^2	0.181	0.396	0.306	0.266	0.228

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).
Unstandardized B coefficients on top line, standard errors in parentheses.
Constant omitted from tables.
1970-1997 models have Colombia and Peru excluded.

The final two columns in Table 8 display results from model D and E of Table 7, except that the two prominent outliers of Colombia and Peru were excluded.[27] These two countries account for nearly 34% of the total domestic terrorism cases in the entire data set. The R^2 value for the final outlier removed model (0.308) is only slightly higher than Table 7 model D (0.303). Once more, economic inequality (b = 0.433), democracy (b =

[27] I did not establish an empirical justification or threshold for choosing outliers.

13.545), and population (b = 3.628) are positive and significant (P < .01). Where again, an increase in economic inequality was associated with more domestic terrorism (hypothesis 2) across the entire time span minus the outliers.

In an effort to examine causation, Tables 9 presents the regression analysis of the predictor variables in 1970-1990 for domestic terrorism incidents during 1991-1997. Country level homicide rates were added as a secondary measure (to PTS) of cultural violence. Initially, homicide was not included in the contemporaneous analysis because there are likely overlap with the outcome variable, in particular those domestic terrorism incidents that resulted in a fatality. The PTS potentially has the same issue. The coding of the PTS, as described by Gidney and Dalton (1996), does not rule out the possibility that homicide numbers might be recounted as part of a country's PTS value. Models E through G in Table 9 are the complete models with either lagged measures of homicide or PTS included/excluded or both, noting that the cultural violence measures were merely included as controls and were not the focus of the analysis (i.e., economic development, inequality, and democracy). Youthful population percentage and sex ratio, which were also excluded from the contemporaneous analysis due to multi-collinearity, were added as additional population control variables to see if the earlier population findings could be disaggregated.

Table 9 reports an initial jump (34%) in percentage of variation explained by the inclusion of homicide rates and the political terror measure (PTS). Among this table, a one-unit increase in a country's homicide rate leads to a 2.340 increase in domestic terrorism. This was robust across all models. The political terror variable was also

Table 9

1970-1990 Predictors of 1991-1997 Domestic Terrorism (Pairwise deletion)

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Population (log)	5.572 **	0.915	0.242	-0.032	0.148	1.001	6.737 **
	(2.480)	(2.277)	(2.574)	(2.985)	(2.537)	(2.872)	(2.828)
% Population Aged 15-29	0.276	-2.851 *	-2.466	-1.845	-1.574	-1.214	-1.935
(Centered)	(1.658)	(1.472)	(1.634)	(2.009)	(1.709)	(1.942)	(2.298)
Sex Ratio (m per 100 f)	-0.026	0.063	-0.124	-0.061	0.421	0.043	0.799
(Centered)	(0.588)	(0.496)	(0.589)	(0.683)	(0.598)	(0.666)	(0.750)
Ethnic Fractionalization	10.839	20.417	20.305	23.601	10.517	0.968	0.279
	(22.356)	(18.055)	(18.669)	(21.852)	(18.962)	(21.299)	(25.345)
Homicide		2.366 ***	2.342 ***	2.718 ***	2.340 ***		
		(0.672)	(0.696)	(0.906)	(0.778)		
Political Terror Scale		10.517 **	13.145 **	13.737 *	21.159 ***	25.170 ***	
(Centered)		(4.338)	(6.055)	(7.017)	(6.352)	(7.076)	
Economic Development			0.000	0.000	0.000	0.000	-0.001
(Centered)			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Economic Inequality				-0.532	-0.495	0.209	0.583
(Centered)				(0.595)	(0.506)	(0.511)	(0.595)
Democracy					43.215 ***	48.746 ***	32.013 *
(Centered)					(12.790)	(14.421)	(16.222)
N	52	52	52	40	40	40	40
R^2	0.114	0.456	0.462	0.477	0.637	0.510	0.281
Adj. R^2	0.030	0.374	0.360	0.322	0.511	0.365	0.101

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Transitional nations excluded.

positive and significant (P < .01) across all models. Economic development again failed to be significant in any model. As in the contemporaneous models, democracy is positively related to terrorism. Democracy, which was initially inferred to be a more responsive avenue to relieve strain, is actually associated with more domestic terrorism among these models (all significant). Model G in Table 9 is the complete model without cultural violence measures. This model again presents positive and significant coefficients for population and the democracy scale. It is a key finding to see that the

democracy effect remains even after the cultural violence variables are withdrawn. However, the population measure is insignificant in models E and F (including the cultural variables), then becomes significant once these variables are taken out of the analysis. Problems with multi-collinearity between the cultural violence measures could be the cause of these inconsistencies. It should be noted that the exclusions of homicide and PTS reduced the R^2 value from 0.637 to 0.281.[28]

Table 10 presents the regression analysis of 1991-1994 independent variables for 1995-1997 domestic terrorism. Again, there in an increase in R^2 value (0.55) by including the cultural violence control variables. Similar to the previous table, Table 10 reports positive and significant coefficients for homicide across all models. Higher country populations are again, associated with more domestic terrorism in the reduced model A through model D.[29] However, within the complete models F and G (one includes PTS and the other does not), population's significance drops out. Only the PTS measure (b = 12.002) has significance among the complete models. Democracy had to this point

[28] There are drawbacks to using R^2 as a sole indicator of model fit. The significance present in all F-tests expressed that the probability that the results of the models did not happen by chance. R^2 values were referred to for the strength of the overall model. Walker and Madden (2009, p.280) identify the R^2 value as "the proportion of variation in the dependent variable associated with variation in the independent variables." The adjusted R^2 corrects for the number of cases where smaller case numbers relative to the number of variables can inflate the R^2 value upward. Also, the coefficient of determination (R^2) value increases with the number of regressors that are included. R^2 struggles to be used as a comparison between models that have a different amount of predictor variables. This is obvious in Tables 9 and 10 when comparing models that include pre-existing violence measures with models that do not. Comparing the F-tests between models is more appropriate.

[29] Model E was plagued by extreme multi-collinearity and subsequently removed from Table 10. The percent of the variation in the dependent variable being explained in this model was abnormally high (R^2 = 0.910). The correlation between homicide rates in the early 1990s with domestic terrorism from 1995-1997 was very high (r = 0.802), while the model had multiple variables above the acceptable level for variance inflation factors and below the tolerance. Multi-collinearity within this model caused a lack of confidence in the findings of model E. The reduction in variables of model G (mainly homicide) reduced all VIFs closer to an acceptable number (i.e., 4).

Table 10

1991-1994 Predictors of 1995-1997 Domestic Terrorism (Pairwise deletion)

	Model A	Model B	Model C	Model D	Model F	Model G
Population (log)	5.169 **	4.893 ***	4.350 **	6.802 **	-0.135	4.434
	(2.233)	(1.589)	(1.932)	(2.492)	(4.035)	(3.306)
% Population Aged 15-29	2.358 *	-0.817	-0.715	0.997	-0.220	1.300
(Centered)	(1.329)	(0.962)	(1.012)	(1.432)	(2.812)	(2.795)
Sex Ratio (m per 100 f)	-0.379	0.502	0.431	0.782 *	-0.719	-0.265
(Centered)	(0.528)	(0.340)	(0.376)	(0.455)	(0.718)	(0.701)
Ethnic Fractionalization	2.455	-1.136	-0.896	17.902	-17.571	-10.858
	(18.842)	(11.242)	(11.633)	(16.177)	(26.875)	(27.697)
Homicide		1.904 ***	1.890 ***	2.210 ***		
		(0.220)	(0.229)	(0.303)		
Political Terror Scale		-3.036	-1.914	-4.329	12.002 *	
(Centered)		(3.164)	(3.888)	(4.491)	(6.528)	
Economic Development			0.000	0.000	0.001	0.000
(Centered)			(0.000)	(0.000)	(0.001)	(0.001)
Economic Inequality				-1.010 *	0.789	0.729
(Centered)				(0.525)	(0.844)	(0.877)
Democracy					13.364	16.176
(Centered)					(18.372)	(19.045)
N	55	55	55	42	42	42
R^2	0.173	0.730	0.732	0.763	0.327	0.246
Adj. R^2	0.098	0.691	0.684	0.695	0.135	0.064

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Russia and Czechoslovakia excluded.

remained significant among all tables, but was found to be null for the 1990s. Democracies in the 1990s could be different than in previous decades, or components within democracies such as the constraints on political power could be causing some of the findings.

An alternative approach was to conduct a separate regression analysis using the separated democracy variables that were initially used in Gates et al.'s (2006) Scalar Index of Polities measure. This was done specifically to examine the components of a democracy and to tackle hypothesis 5 which states that more restrictions on executive decision-making power will lead to increased domestic terrorism. The findings for this are presented as Table 11.

Table 11

Regression Analysis of Democracy Variables (Pairwise deletion)

Predictors	1970-1997	1970-1990	1991-1994
Domestic Terrorism	1970-1997	1991-1997	1995-1997
Population (log)	4.589 **	6.031 **	4.060
	(1.880)	(2.824)	(3.142)
% Population Aged 15-29	-1.739	-1.821	0.913
(Centered)	(1.629)	(2.344)	(2.538)
Sex Ratio (m per 100 f)	0.575	0.758	-0.243
(Centered)	(0.500)	(0.779)	(0.701)
Ethnic Fractionalization	-3.855	-0.752	-13.220
	(15.233)	(26.176)	(26.840)
Executive Constraints	3.547 *	4.560	2.473
	(1.795)	(2.770)	(2.707)
Economic Development	-0.001	-0.001	0.000
(Centered)	(0.000)	(0.001)	(0.001)
Economic Inequality	1.131 ***	0.628	0.818
(Centered)	(0.409)	(0.608)	(0.822)
N	55	40	42
R^2	0.310	0.253	0.249
Adj. R^2	0.198	0.067	0.067

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Transitional nations excluded from 1970-1990 predictors of 1991-1997 domestic terrorism.

Russia and Czechoslovakia excluded from 1991-1994 predictors of 1995-1997 domestic terrorism.

These models are similar to the complete models found in Tables 7, 9, and 10 except that the democracy scale is replaced with Gibney and Dalton's (1996) executive constraint measure.[30] Higher executive constraints were hypothesized to cause more frustration due to an inability to pass legislation thus leading to more domestic terrorism. All models reported a positive association between more executive constraints and the amount of domestic terrorism. However, only the contemporaneous model (1970-1997) was significant ($P < .10$). Within this same model, an increase of one-unit in the GINI coefficient leads to a country level increase in domestic terrorism of 1.131 ($P < .01$). The highest percent of variation explained ($R^2 = 0.310$) is also seen in the contemporaneous model. Lastly, population is yet again positive and significantly associated with domestic terrorism. A discussion of the potential meaning behind many of these findings follows in the concluding chapter.

[30] The executive constraints measure was chosen on the basis of Li's (2005) findings that institutional or government constraints promoted transnational terrorism. The other five components to Gates et al.'s (2006) Scalar Index of Polities measure should not theoretically promote more terrorism.

CHAPTER VI

SUMMARY AND DISCUSSION

Discussion

The purpose of this thesis was to answer two questions. First, do prior established predictors of criminal violence (i.e., economy, inequality, social welfare, political orientation, ethnic fractionalization, population, and pre-existing violence) also predict domestic terrorism at the country level? Second, is the relationship between these macro-structural and cultural variables in the same direction as found in the previously published work? In an effort to use criminological methods and to narrow the focus to domestic terrorism only, I used the Global Terrorism Database along with other data sets, to examine these issues among 72 developed countries between 1970 and 1997.

The findings from both the descriptive and multivariate regression analyses provide mixed results for the relationship between structural correlates of cross-national violence and domestic terrorism. For example, a number of control variables established in prior literature (i.e., ethnic fractionalization, sex ratio, and youthful population percentage) did not achieve statistical significance in the current study, whereas the population variable was significant across nearly all models. Thus, although overall population of a country was significantly related to overall levels of terrorism, the size of the youthful population was not, nor was the ratio of men to women. This implies that the sheer volume of people of a population increases the probability of a country experiencing a larger number of domestic terrorism events. More people may equate to more individuals willing to commit acts of terrorism and more available targets. This was suggested by Mullins and Young (2009) and Burgoon (2006) while being supported

across the board in other works (Koch & Cranmer, 2007; Li, 2005; Li & Schaub, 2004; Wade & Reiter, 2007). Similarly, the five hypotheses and the cultural violence measures had notable findings as well.

Hypothesis One

Consistent findings for economic development, measured as GDP per capita, emerged across both contemporaneous and lagged analyses— a country's level of GDP does not appear to be statistically associated to domestic terrorism. Though there are a number of theoretical explanations expecting both a positive and negative relationship between economic development and cross-national homicide rates (i.e., modernization and civilizing perspectives), results from this study indicated a consistently null relationship between GDP and domestic terrorism. One potential reason for this null finding is the measurement of economic development (GDP per capita) used in the current study. GDP is a frequently used measure of economic development; however other researchers have also used other indicators to create an index of economic development (Messner & Rosenfeld, 1997; Messner et al., 2002). Perhaps including a more multi-dimensional index of development would better capture the concept and any potential effects of economic development on domestic terrorism. Additionally, it is important to note that modernization perspectives would advocate for a measure of economic development that captures rate of change rather than overall, thus future research should also include a measure of rapid economic development.

Hypothesis Two

The effect of economic inequality (GINI), however, was much more consistent with prior research on the causes of cross-national violence. Particularly, a positive

relationship between economic inequality and domestic terrorism was found in both the long-term and short-term contemporaneous analyses. Countries with higher levels of economic inequality are more likely to experience domestic terrorism events compared to those countries with lower levels of economic inequality. This is consistent with recent criminological research which finds strong cross-sectional effects of income inequality on homicide rates across countries (Messner et al., 2002).

The time-ordered analyses, however, provided much less consistent and supportive evidence for the effects of economic inequality on domestic terrorism. Messner et al. (2002) posits that researchers often disregard the quality of the GINI measure in order to maximize their sample sizes, thus enhancing representativeness and statistical power. However, Messner et al. (2002) found inequality's positive association with homicide to be robust in all cross-sectional analysis regardless of the quality of the GINI measure, but only the low-quality GINI variable (which increased sample size) was significant in their longitudinal analysis. Messner et al. (2002, p.393) acknowledges that "more developed nations are disproportionately represented in the longitudinal analysis, and these are the nations with the most advanced social welfare systems, that is, nations for which the criminogenic effects of income inequality are likely to be mitigated." I chose to use only highest quality GINI measure in my model, which reduced the sample size (n = 37) to a much lower number compared to other variables. This likely contributes to the lack of significance for inequality in the time-ordered analysis.

Hypothesis Three

Due to a multi-collinearity issue, this study was unable to examine the relationship between decommodification and domestic terrorism in the regression

analyses. I do know however, that decommodification is significantly related to economic inequality (GINI), and GINI is significantly related to domestic terrorism. The correlation between decommodification and terrorism is negative for the country and incident level, while only significant at the incident level ($r = -0.154$ with domestic terrorism, $r = -0.153$ with total terrorism). Future researchers should continue to explore decommodification as it relates to terrorism. A longitudinal analysis would be more suitable for reducing the collinearity problems between the predictor variables.

Hypothesis Four

Grievances form when the physical and material needs of societal members are not met by their government. Rosenfeld and Messner (2006b) speculate that an anomic culture born out the institutional imbalance of power, anomie and strain may arise when goals cannot be achieved or are perceived to be too difficult due to blocked legitimate opportunities. Researchers associate this with closed or less-open political systems (Li, 2005). In regards to dealing with grievances, it was theoretically implied based on prior literature that democracies are better equipped to listen to their constituents and relieve strain.

Reworded, stronger democracies, versus autocracies, should be negatively related to their level of domestic terrorism. However, results indicated the opposite relationship where a higher degree of democracy was associated with more domestic terrorism. This effect of democracy on domestic terrorism is one of the more robust findings across modeling strategies. However, the relationship between democracy and domestic terrorism (still positive) was insignificant in the time-ordered analysis of the 1990s.

Although the current study found that stronger democracies have higher terrorism, the effect of democracy on violence may be more nuanced and complicated. It is speculated that the age of democracy for a country could be a key factor for a nation's degree of violence, especially for the results of the 1990s. In a cross-national homicide study, LaFree and Tseloni (2006) report that autocracies did not on average have higher rates of homicide than full democracies. They did however find that countries that were transitioning from autocracies to democracies saw a significant increase in their homicide rates. LaFree and Tseloni (2006) suggest that perhaps democracy does not have a linear effect but is curvilinear for violent crime. Their results supported the modernization hypothesis, whereas newer democracies experience heightened levels of crime but once a country achieves full democracy its level of violence should decline. This is relevant to the lack of significance for the democracy variable in Table 10. In this regression analysis, all developed nations except Russia and Czechoslovakia were included. It is possible that many of these transition countries, mostly from the dissolution of the USSR (i.e., Estonia, Latvia, Lithuania, and etc.), are responsible for these null findings. Future research should examine the effects of different types of democracies on levels of terrorism.

Hypothesis Five

Dissecting the broader concept of democracy, hypothesis five examined if more restrictions on executive decision-making power would lead to increased domestic terrorism. This was supported in direction and significance in the long-term pooled sample, but was insignificant in the time-ordered analyses. The amendment and veto power among the multiple branches of government common among Democracies can

often lead to a political stalemate, subsequently frustrating the populous (Dugan & Young, 2008). Political deadlock is what Li (2005) considers being a complexity governments deal with in their efforts to protect citizens from terrorist. Though Li's (2005) research addressed transnational terrorism only, this may also be useful for domestic terrorism prevention as well.

My initial perspective was that Gates et al.'s (2006) Scalar Index of Polities measure incorporated more components that if found to be positive for a country then it would lead to less domestic terrorism. Out of the six elements (i.e., election recruitment, competition, and openness, executive constraints on decisions, and voter turnout and competition between parties), only the constraints was theoretically considered to be positively associated with domestic terrorism. Again, this was supported in the contemporaneous analysis, thus supporting Dugan and Young's (2008) veto players argument that executive systems with more individuals or collective members who must agree before a policy is passed lead to more deadlock and an eventual increase in terrorism. Future research should explore the independent influence of other elements of democracy, such as the openness of the political process, amount of veto players, as well as other alternative measures of democracy. The operationalization of democracy used by this study is less than ideal. The complexities of political orientation and domestic terrorism could encompass a study alone. However, the restrictions placed on political figures lead to increased frustration and a higher probability of domestic terrorism. The essence of democracy involves these checks and balances that reduce autocratic leadership while hindering rapid progress in certain areas. This component is one of the more interesting findings of this piece. Future endeavors should tackle all aspects of the

political regimes. Most notably, studies should consider the argument of LaFree and Tseloni (2006) that suggest that violent crime rates are curvilinear in transitional countries (going from autocratic to democratic).

Cultural Effects

Modeled from the findings of Mullins and Young (2009), this study included two measures of cultural violence, homicide rates and a political terror scale. These measures are incorporated as controls only, estimating the effect of cultural violence is not the focus of the study. When either of these two measures is added to the model, the percent of variation in the dependent variable explained goes drastically up. The political terror scale is positive and significantly associated with domestic terrorism. As the PTS value for a country increases, the probability that domestic terrorism events will occur also increases. Higher homicide rates are also associated with more domestic terrorism at the country level. The findings of higher homicides rates being linked to more domestic terrorism could be a product of two different things. One, I expect prior homicide to be associated with terrorism to a certain extent, since the terrorism data include events that resulted in homicides. Thus, a portion of a country's homicide rate at time one will strongly be related to domestic terrorism at time two. Nevertheless, if you combine the positive association of prior homicide and a pre-existing context of political terror found in the regression analysis, this supports Mullins and Young's (2009) culture of violence argument. When nations are routinely exposed to violence, they culturally heighten their acceptance toward violence and subsequently more cases of domestic terrorism may result.

As previously noted in the findings section, all analyses were re-ran excluding the cultural violence measures and the population and democracy variables often remained significantly positive. The models with both pre-existing violence measures should be interpreted cautiously due to the potential multi-collinearity between the two controls.

Nevertheless, this study is one of the first to examine domestic terrorism cross-nationally and has relevant findings, yet it is not without limitations.

Limitations

There are a number of limitations to the current study. First, this study does not adequately take full advantage of the time series data and thus cannot make strong causal inferences about the effects of structural and cultural variables on domestic terrorism. Second, the design assumes most of the relationships are relatively stable, constraining change by averaging values across time periods. Although the robustness of this relationship was tested within shorter intervals of time, it is likely that the assumption is violated in certain cases. Additionally, whereas certain macro-structural variables are fairly stable over time (e.g., GINI, see Gartner, 1990) other variables may indeed exhibit variation. Third, it is likely that the measure of domestic terrorism suffers from some degree of random and non-random measurement error, which affects the reliability and validity of the terrorism measure (Carmines & Zeller, 1979). Terrorism estimates based on open source data using media reports may be vulnerable to measurement error since some countries may have higher counts merely because reporting is more accurate or reliable. There could be both random and systematic (e.g., media bias; regional bias; certain countries more likely to have better news coverage; etc.) coding error within and across countries. LaFree and colleagues (2009) have also noted the potential for

measurement error in terrorism estimates produced by the GTD, particularly, the potential for confounding related violence with terrorism. The GTD is designed to exclude incidents that are state sanctioned or wartime related, however the researchers have acknowledged that during these periods of conflict it is often difficult conceptually and empirically to distinguish between terrorism, criminal acts or acts related to war/conflict (LaFree et al., 2009).

The terrorism data, as well as the homicide data, had non-normal distributions. The skewed data was in part due to outliers such as Colombia and Peru. This is a violation of the OLS assumption of a normal distribution of residuals (Walker & Madden, 2009). A transformation of the data is often suggested but creates difficulty in the interpretation of the findings. Future researchers on terrorism will likely encounter skewed terrorism data across even a moderate number of countries. Though a variable measuring region of the country was initially included in the analysis (LaFree et al., 2009; Mullins & Young, 2009), the region variable lacked variation outside of three categories (i.e., Americas, Europe, and Northern Africa/Middle East). The Sub-African category, primarily Sub-Saharan Africa with only Mauritius, was not a quality reflection of the region. By reducing the sample to developed nations, Africa and other parts of the world were not represented. Future research should explore region-based effects on terrorism.

Similar to regions, population as a concept was not maximized. This research included a logged country population, sex ratio, and the percent of youth in the population, but did not consider a country's size or population density. A suggestion to future researchers would be to incorporate an outcome measure of terrorism that accounts

for population size such as a rate, similar to homicide rates. Standardizing population and including a measure for population density should both be explored as predictors of terrorism.

Statistically, ordinary least squares regression was an appropriate statistical analysis for this initial exploration of domestic terrorism at the country level. However, instead of using the average of the outcome variable, one could use a more sophisticated statistical technique such as Poisson or negative binomial regression to deal with the count data. Negative binomial regression can be used to deal with the over-dispersion prevalent in terrorism cross-nationally. Mullins and Young (2009) advocate the use of zero-inflated negative binomial regression models that can accommodate multiple zeros and the over-dispersion common among terrorism count data.

Lastly, an obvious limitation involves the reduction in sample to include developed nations only. The results of this study struggle to be generalized outside of this boundary. Also, region-based variables were incorporated but due to the limitation of developed nations and open-sourced media collecting the data this study is regionally overwhelmed by European nations. Only one country fell within the Sub-African category. Predictors of domestic terrorism in regions outside of Europe or the Americas could be vastly different than what is suggested by this study.

Conclusion

Whereas, terrorism is overwhelmingly domestic, this study is one of the first to examine domestic terrorism cross-nationally. It also adds to the miniscule amount of terrorism research that incorporates the use of criminological theory coupled with criminological data collection and methods. The two driving forces for this study were whether prior established predictors of criminal violence could also predict domestic

terrorism at the country level; and would the relationship between these macro-structural and cultural variables be in the same direction as previously found? After examining the association and relationship between economy, inequality, social welfare, political orientation, ethnic fractionalization, population, and pre-existing violence on domestic terrorism at the country level, this study reports a handful of key findings. One, stronger democracies actually experience more domestic terrorism. Second, the restrictions placed on executive power lead to more domestic terrorism events. Here lies a major policy implication that can be drawn from this study. This study confirms that democracy as a variable "matters" in relation to terrorism. Whereas, Li (2005) suggests that executive constraints lead to political deadlock that hinders a government's ability to counteract terrorism; Dugan and Young (2008) found that more veto players within a political system lead to a higher likelihood that terrorism would exists and would be more frequent. Governments need to consider the effects that political stalemates have on their ability to pursue counterterrorism as well as leading to increased terrorism incidents.

Other key findings include the degree of domestic terrorism for a country rises as the amount of economic inequality increases. Fourth, larger populated nations have more possible terrorist and more available targets. Lastly, pre-existing violence within a culture, most notably homicide, leads to a culture that experiences more domestic terrorism. All of the key findings are relevant to governmental and policy exploration, some of which are continuously tackled (i.e., increasing population, crime rates, economic inequality). However, the democracy component seems to be the most intriguing and devoid of governmental attention.

In retrospect, the creation of the Global Terrorism Database and other data sources enables researchers to progress in the understanding of terrorism. The findings of this study alone, promote the exploration of criminological theory and methods to the study of terrorism. Criminologists should take an active role in findings ways to reduce terrorism in all forms. This is not a local phenomenon but an unfortunate global reality. If we are to reduce the episodes of this horrific offense, research and understanding will be at the heart.

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APPENDICIES

Appendix A

Codebook

Concept	Variable	Measured
Domestic Terrorism	GTD Domestic Terrorism	Annual Attacks per Country
Economic Development	GDP per Capita	Continuous
Economic Inequality	GINI Coefficient	0 to 100
Social Welfare	Decommodification	Proxy of Expenditures Across Programs
Government Political Orientation	Gates et al. (2006) Scalar Index of Polities	Average Score Across Three Dimensions (0 to 1)
Ethnic Fractionalization	Fearon & Laitin (2003) Ethnic Frac. Index	0 to 1
Country Size	Population	Log of Annual Population
Sex	Sex Ratio	# Males per 100 Females
Age	Youthful Population	Percent Population Aged 15-29
Pre-existing Violence	Homicide	Homicide per 100k People
Cultural Violence	War Involvement	Dichotomy (Involved Prior Year)
Cultural Violence	Political Terror Scale	0 to 5
Stability	Transitional Nation	Dichotomy (Separated/Formed)
Geographic Differences	Regional Connections	5 Global Regions

Appendix B

Tables Using Listwise Deletion

Table 1

Correlation Matrix for Incident Level of Developed Nations, 1970-1997 (Listwise deletion)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Domestic Terrorism	1.000													
2. Transnational Terrorism	.342 **	1.000												
3. Total Terrorism	.962 **	.369 **	1.000											
4. Economic Development	-.087	-.118	-.115	1.000										
5. Economic Inequality	.172 *	.148 *	.139	-.094	1.000									
6. Decommodification	-.154 *	-.123	-.161 *	.409 **	-.740 **	1.000								
7. Democracy	-.055	-.092	-.016	.264 **	-.588 **	.426 **	1.000							
8. Ethnic Fractionalization	.129	.048	.129	-.032	.206 **	-.412 **	-.129	1.000						
9. Population (log)	.331 **	.293 **	.312 **	.215 **	.537 **	-.489 **	-.314 **	.418 **	1.000					
10. Sex Ratio (m per 100 f)	-.196 **	-.152 *	-.201 **	-.067	-.077	.198 **	-.057	.037	-.393 **	1.000				
11. % Population 15-29	-.173 *	.148 *	-.204 **	-.325 **	.467 **	-.426 **	-.458 **	.245 **	.096	.208 **	1.000			
12. Homicide Rate per 100k	-.024	.148 *	-.068	.129	.669 **	-.469 **	-.709 **	.207 **	.606 **	-.154 *	.471 **	1.000		
13. Recent War	.078	.201 **	.076	.072	.025	-.012	.031	.022	.093	-.048	-.061	.008	1.000	
14. Political Terror Scale	.330 **	.261 **	.307 **	-.351 **	.337 **	-.347 **	-.437 **	-.030	.159 *	-.076	.147 *	.228 **	.051	1.000

Significance levels * ≤ .05. ** ≤ .01. (2-tailed).

Table 2

Correlation Matrix for Country Level of Developed Nations, 1970-1997 (Listwise deletion)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Domestic Terrorism	1.000												
2. Transnational Terrorism	.814 **	1.000											
3. Total Terrorism	.993 **	.789 **	1.000										
4. Economic Development	-.141	-.169	-.171	1.000									
5. Economic Inequality	.128	.120	.125	-.582 **	1.000								
6. Decommodification	-.175	-.153	-.196	.645 **	-.841 **	1.000							
7. Democracy	-.116	-.209	-.123	.624 **	-.801 **	.644 **	1.000						
8. Ethnic Fractionalization	.040	.007	.044	-.017	.291	-.296	-.176	1.000					
9. Population (log)	.506 *	.673 **	.456 *	-.013	.310	-.294	-.363	.247	1.000				
10. Sex Ratio (m per 100 f)	-.072	-.212	-.061	-.194	.421	-.227	-.231	.235	-.039	1.000			
11. % Population 15-29	.033	-.166	.047	-.584 **	.714 **	-.663 **	-.619 **	.377	.137	.543 *	1.000		
12. Homicide Rate per 100k	-.024	.018	-.042	-.358	.771 **	-.574 **	-.810 **	.251	.490 *	.356	.636 **	1.000	
13. Political Terror Scale	.480 *	.380	.498 *	-.505 *	.710 **	-.602 **	-.741 **	.141	.242	.289	.523 *	.579 **	1.000

Significance levels * ≤ .05. ** ≤ .01. (2-tailed).

Table 3

Regression Analysis for Long Term Pooled Sample (Listwise deletion)

	Model A	Model B	Model C	Model D	Model E
Population (log)	5.341 **	5.659 **	4.732 *	6.782 **	3.194
	(2.195)	(2.304)	(2.663)	(3.014)	(2.734)
Ethnic Fractionalization	10.940	9.880	8.374	5.078	17.937
	(15.623)	(16.681)	(17.527)	(17.498)	(15.075)
Economic Development		0.000	0.000	-0.001	0.000
(Centered)		(0.000)	(0.000)	(0.001)	(0.001)
Economic Inequality			1.005 **	1.036 **	0.043
(Centered)			(0.395)	(0.391)	(0.414)
Democracy				26.817	62.910 ***
(Centered)				(19.158)	(18.802)
Political Terror Scale					24.909 ***
(Centered)					(5.555)
N	58	55	49	49	47
R^2	0.098	0.113	0.220	0.254	0.500
Adj. R^2	0.065	0.060	0.149	0.167	0.426

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Table 4

Short-Term Cross-Sectional Analysis and Outliers (Listwise deletion)

	Time 1 1970-1979	Time 2 1980-1990	Time 3 1991-1997	Outliers Removed 1970-1997	Outliers Removed 1970-1997
Population (log)	7.366 *	0.493	2.607	3.601 *	4.312 **
	(3.557)	(3.829)	(3.579)	(1.794)	(1.697)
Ethnic Fractionalization	3.792	10.421	9.031	4.332	0.334
	(20.195)	(23.794)	(21.897)	(10.404)	(10.168)
Economic Development	-0.001	0.000	0.000	0.000	1.294
(Centered)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Economic Inequality	0.053	0.185	0.272	0.141	0.375
(Centered)	(0.585)	(0.598)	(0.595)	(0.272)	(0.229)
Democracy	17.507	30.182	39.975	25.072 *	11.227
(Centered)	(22.598)	(28.765)	(32.978)	(13.821)	(11.122)
Political Terror Scale	0.647	18.878 *	16.565 **	7.572 *	
(Centered)	(8.734)	(9.642)	(6.490)	(4.319)	
N	21	32	42	45	47
R^2	0.303	0.237	0.334	0.273	0.219
Adj. R^2	0.005	0.054	0.220	0.158	0.124

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

1970-1997 models have Colombia and Peru excluded.

Table 5

1970-1990 Predictors of 1991-1997 Domestic Terrorism (Listwise deletion)

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Population (log)	6.677 *	1.748	0.075	5.897 *	6.299 **	5.298 **	6.125 ***
	(3.355)	(3.179)	(3.527)	(2.900)	(2.738)	(2.198)	(2.217)
% Population Aged 15-29	0.208	-3.139 *	-2.511	-1.848	-2.419	-2.756	-3.333 *
(Centered)	(1.719)	(1.589)	(1.782)	(2.032)	(1.934)	(1.618)	(1.636)
Sex Ratio (m per f)	0.094	0.275	0.022	0.674	0.514	0.473	0.723
(Centered)	(0.651)	(0.540)	(0.639)	(1.278)	(1.206)	(1.071)	(1.098)
Ethnic Fractionalization	11.543	20.483	20.384	15.787	15.551	15.108	14.571
	(23.365)	(18.640)	(19.329)	(15.759)	(14.838)	(14.327)	(14.819)
Homicide		2.840 ***	2.898 ***	-1.284	-0.986		
		(0.703)	(0.717)	(1.131)	(1.075)		
Political Terror Scale		8.288 *	11.334 *	2.779	9.127	9.058	
(Centered)		(4.308)	(5.663)	(4.864)	(5.556)	(5.384)	
Economic Development			0.001	0.000	-0.001	-0.001	-0.001
(Centered)			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Economic Inequality				0.529	0.427	0.285	0.570
(Centered)				(0.507)	(0.480)	(0.370)	(0.340)
Democracy					34.624 *	36.123 **	19.289
(Centered)					(17.157)	(16.471)	(13.537)
N	47	44	42	33	33	34	34
R^2	0.097	0.501	0.523	0.316	0.419	0.397	0.329
Adj. R^2	0.011	0.420	0.425	0.088	0.192	0.204	0.148

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Transitional nations excluded.

Table 6

1991-1994 Predictors of 1995-1997 Domestic Terrorism (Listwise deletion)

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Population (log)	6.389 *	6.504 ***	5.179 **	5.217 *	5.286	0.715	4.533
	(3.288)	(2.100)	(2.464)	(2.931)	(3.099)	(5.353)	(5.167)
% Population Aged 15-29	2.889 *	-0.471	-0.581	0.591	0.659	0.038	1.443
(Centered)	(1.626)	(1.172)	(1.554)	(2.150)	(2.336)	(4.073)	(4.182)
Sex Ratio (m per 100 f)	-0.459	0.536	1.018	0.432	0.401	-1.478	-1.671
(Centered)	(0.613)	(0.383)	(0.945)	(1.227)	(1.305)	(2.080)	(2.171)
Ethnic Fractionalization	-2.834	-10.879	-10.396	-6.052	-5.665	-2.073	-20.561
	(21.923)	(13.088)	(13.450)	(17.411)	(18.343)	(32.274)	(32.087)
Homicide		2.113 ***	2.128 ***	2.340 ***	2.340 ***		
		(0.252)	(0.262)	(0.305)	(0.312)		
Political Terror Scale		-3.918	-1.792	-2.675	-2.665	17.838 *	
(Centered)		(4.262)	(4.650)	(6.073)	(6.198)	(9.573)	
Economic Development			0.000	0.000	0.000	0.001	0.000
(Centered)			(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Economic Inequality				-0.500	-0.504	0.700	1.381
(Centered)				(0.634)	(0.649)	(1.030)	(1.006)
Democracy					3.027	11.093	-7.131
(Centered)					(35.624)	(46.151)	(47.122)
N	49	46	44	34	34	35	35
R^2	0.174	0.754	0.767	0.804	0.804	0.343	0.255
Adj. R^2	0.099	0.716	0.722	0.742	0.731	0.141	0.062

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Russia and Czechoslovakia excluded.

Table 7

Regression Analysis of Democracy Variables (Listwise deletion)

Predictors	1970-1997	1970-1990	1991-1994
Domestic Terrorism	1970-1997	1991-1997	1995-1997
Population (log)	6.485 **	5.671 **	2.738
	(3.122)	(2.312)	(2.411)
Ethnic Fractionalization	3.849	14.864	3.453
	(18.183)	(15.172)	(12.948)
% Population Aged 15-29	-2.298	-3.228 *	-0.643
(Centered)	(2.149)	(1.704)	(1.562)
Sex Ratio (m per 100 f)	1.095	0.643	-0.511
(Centered)	(1.104)	(1.122)	(0.885)
Executive Constraints	4.030	2.217	-5.197
	(3.461)	(2.510)	(3.534)
Economic Development	-0.001	-0.001	0.000
(Centered)	(0.001)	(0.001)	(0.000)
Economic Inequality	1.239 **	0.607	0.587
(Centered)	(0.484)	(0.358)	(0.379)
N	49	34	35
R^2	0.264	0.297	0.395
Adj. R^2	0.138	0.108	0.238

Significance levels * ≤ .10. ** ≤ 05. *** ≤ .01. (2-tailed).

Unstandardized B coefficients on top line, standard errors in parentheses.

Constant omitted from tables.

Transitional nations excluded from 1970-1990 predictors of 1991-1997 domestic terrorism.

Russia and Czechoslovakia excluded from 1991-1994 predictors of 1995-1997 domestic terrorism.